



*Draft Environmental Assessment
for the*

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United States Courthouse
Proposed Courthouse Annex
Norfolk, Virginia**



Responsible Agency:

**General Services Administration
Region 3**

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3 AFFECTED ENVIRONMENT

Chapter 3, Affected Environment, provides a description of the current natural, social, economic, and cultural environments at all five sites. The purpose of this chapter is to provide sufficient information on the existing conditions to evaluate the potential impact to the human environment from the proposed action.

Impact topics analyzed in detail are divided into four sections:

- Section 3.1, Natural and Physical Environment
- Section 3.2, Social Environment
- Section 3.3, Cultural Environment
- Section 3.4, Infrastructure and Waste Management

3.1 NATURAL AND PHYSICAL ENVIRONMENT

3.1.1 TOPOGRAPHY

Topography has specific implications for site development. It controls the location of roads, buildings and utilities and generally affects the overall visual character of a site. The City of Norfolk is located on lands that range in elevation from sea level to approximately 15 feet above mean sea level (msl). According to the USGS topographic map for the area, the surface elevation for the Southern and Tower Annex Sites are approximately 10 feet above the mean sea level (msl). The surface elevation for the Western Annex Alternative is approximately 9 to 10 feet above msl. The surface elevation for the Eastern Annex Alternative is approximately 10 to 11 feet above msl and the surface elevation for the Northern Annex Alternative is approximately 7 to 8 feet above msl.

3.1.2 GEOLOGY AND SEISMICITY

Geology

The City of Norfolk is located within the Coastal Plain Physiographic Province at the mouth of the Chesapeake Bay. The Coastal Plain Province is a lowland that borders the Atlantic Ocean and ranges in width from as much as 140 miles in North Carolina to several miles at its northern terminus at the south short of Raritan Bay in New Jersey. Although it is generally a flat, seaward-sloping lowland, this province has areas of moderately steep local relief, and its surface reaches altitudes of 350 feet in the southwestern part of the North Carolina Coastal Plain. The Coastal Plain mostly is underlain by semiconsolidated to unconsolidated sediments that consist of silt, clay and sand, with some gravel and lignite. Some consolidated beds of limestone and sandstone are present. The Coastal Plain sediments range in age from Jurassic to Holocene and dip gently toward the ocean.

Seismicity

Based on historical earthquake locations and the recurrence rate of fault ruptures, the United States Geological Survey (USGS) has produced seismic hazard maps that show, by contours, earthquake ground motions that have a common probability of being exceeded in a specified time period under specific geological site conditions. The Norfolk area is shown on such a map (Figure 3-1). The predicted maximum amount of earthquakes induced shaking with a 10 percent probability of being exceeded in 50 years is shown on this map. The ground motion is expressed as a percentage of the force of gravity (percent g) and is proportional to the hazard faced by a particular type of building.

In general, little or no damage can be expected at values less than 10 percent g, moderate damage at 10 to 20 percent g, and major damage at values greater than 20 percent g. For example, eastern Virginia is situated on contours of less than eight percent g. Thus, the potential for damage from seismic activity is not a serious concern for the proposed project to be developed in this region.

These maps have been designed specifically to be useful in building codes. Contoured maps of design ground motions have replaced maps with numbered zones in nearly all building codes. The standards document, *Minimum Design Loads for Buildings and Other Structures* (ASCE 1996), uses maps based on a 10 percent probability of ground motion parameters (effective peak accelerations and effective peak velocity-related accelerations) being exceeded in 50 years to establish provisions to design and construct buildings that will resist the effects of earthquake motions. The most recent edition of *NEHRP (National Earthquake Hazards Reduction Program) Recommended Provisions for seismic Regulations for New Buildings and Other Structures* (BSSC, 1998) provides a design procedure based on contour maps of another parameter, spectral response. While the potential for seismic damage is small in eastern Virginia, the procedures specified in these documents and other seismic building codes may need to be considered in the design of any new structures.

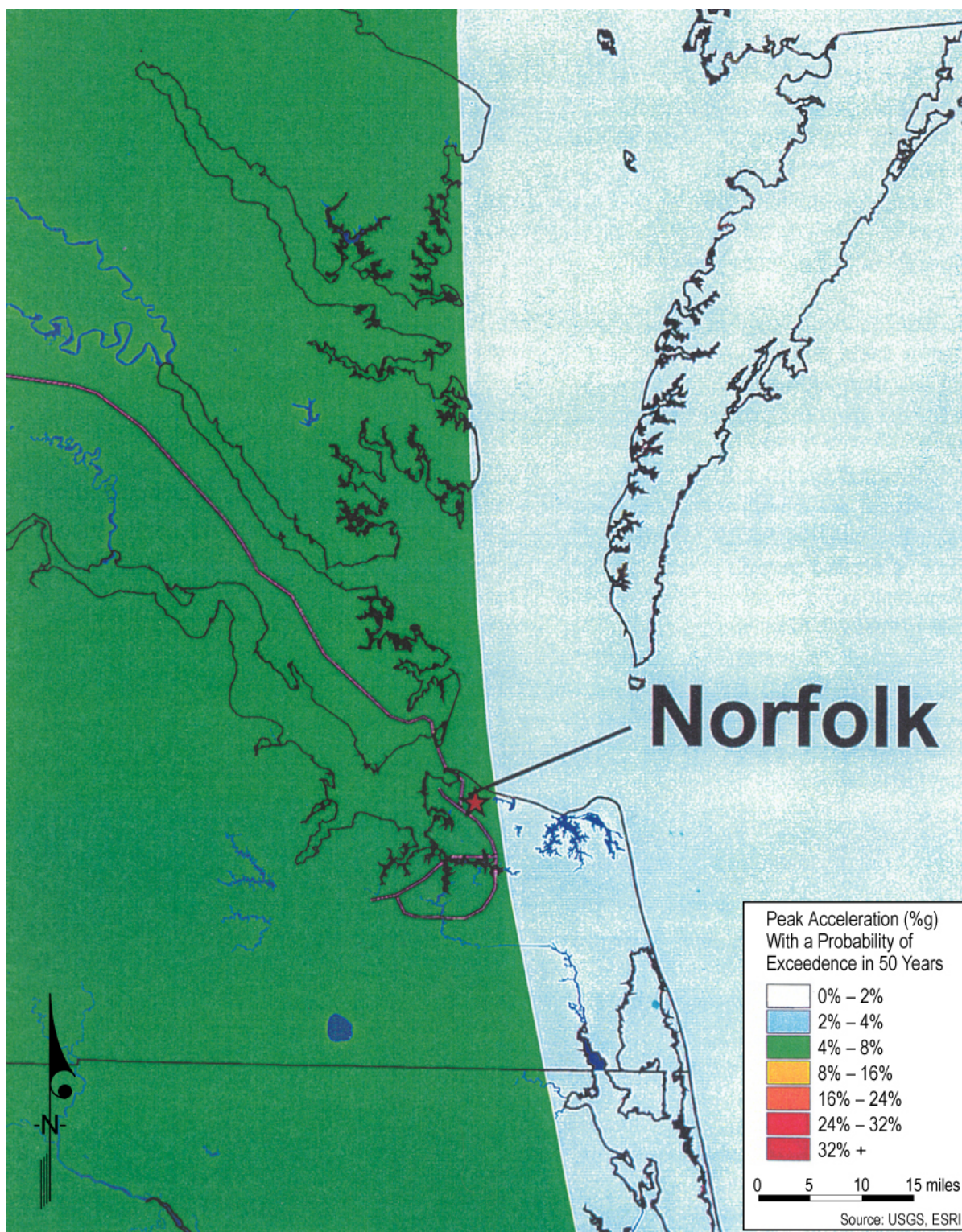


Figure 3-1: Seismic Information

3.1.3 SOILS

According to the U.S. Department of Agriculture, Natural Resource Conservation Service's (NRCS) *Soil Survey for Norfolk, Virginia* (unpublished), all sites are entirely underlain by "Urban Land", which is defined as "*areas where more than 80 percent of the surface is covered by parking lots, buildings and other structures... onsite investigation is needed to determine suitabilities for any use.*"

Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic (no oxygen) conditions within the upper part. Hydric soils generally support a vegetative community adapted for saturated, anaerobic conditions and, therefore, are indicators of the presence of wetlands. No hydric soils are present at any of the sites.

Prime Farmland Considerations

Prime farmland, as defined by the NRCS, is "farmland which meets a set of technical criteria based upon soil water capacity or availability of irrigation, temperature regime, pH, depth of water table, conductivity, exchange sodium, flood potential, erosion potential, permeability, and percentage of fragmented rocks."

As required by the Farmland Protection Policy Act (FPPA) (Pub. Law 97-98, 7 U.S.C. §§4201-4209), GSA is required to take into account any adverse effect the proposed action may have on the preservation of farmland, to consider alternative actions, as appropriate, to lessen adverse effects and to ensure that the proposed action is compatible with other policies which protect farmland. Projects on land already in urban development are not subject to the FPPA. Because all sites are located in downtown Norfolk, an area already in development, and because "Urban Land" is not considered to be a prime farmland soil, the proposed action is not subject to the provisions of the FPPA.

3.1.4 WATER RESOURCES

Water resources include groundwater and surface water. It is anticipated that groundwater and surface water within the project area flows in accordance with existing topographic features, which is generally high elevation to low elevation. All sites are developed with surface structures or are under construction and were previously paved; therefore, surface water would likely drain to the surrounding public street system and associated storm sewer system. None of the five alternative sites contains wetlands. In addition, no wetlands are directly affected by runoff from any of the sites.

3.1.5 FLOODPLAINS

Executive Order 11988 requires federal agencies to evaluate the potential effects of any actions it may take in a floodplain and to ensure that plans consider flood hazards and floodplain management needs. GSA Order ADM 1095.6, ***Consideration of Floodplains in Decision Making***, establishes policy and assigns responsibility within GSA for implementing laws and

Executive Orders concerning GSA actions that may affect floodplains. ADM 1095.6 states, “All Heads of Service, Business Lines, and Regional Offices will employ the Floodplain Management Desk Guide as guidance in carryout the order.”

The floodplain of concern is usually the 100-year floodplain. The 100-year floodplain is defined as an area subject to a one percent or greater chance of flooding in any given year. The 500-year floodplain is defined as an area subject to a 0.2 percent chance of flooding in a given year. For certain critical actions, the 500-year floodplain is the area of concern. The Floodplain Management Desk Guide states, “A ‘critical action’ is any activity for which even a slight chance of flooding would be too great. Examples of critical actions include, but are not limited to site acquisition and construction of new courthouses; storage of national strategic and critical materials; storage of irreplaceable records; child care facilities; FEMA offices and facilities, and public benefit conveyances for schools or prisons. Critical actions cannot be located in either a 100- or 500-year floodplain unless there is no practicable alternative.” The proposed Courthouse Annex is categorized as a Critical Facility.

GSA’s Floodplain Management Desk Guide provides an eight-step process to assess and address floodplain effects:

Step 1: Determine whether the action will occur in, or stimulate development in, a floodplain.

Step 2: Identify and evaluate practicable alternatives to locating in or affecting the floodplain.

Step 3: Public review/input of the proposed action.

Step 4: Identify the impacts of the proposed action if it were to occur in a floodplain.

Step 5: Minimize threats to life, property and to natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values.

Step 6: Reevaluate alternatives in light of any new information that may have become available.

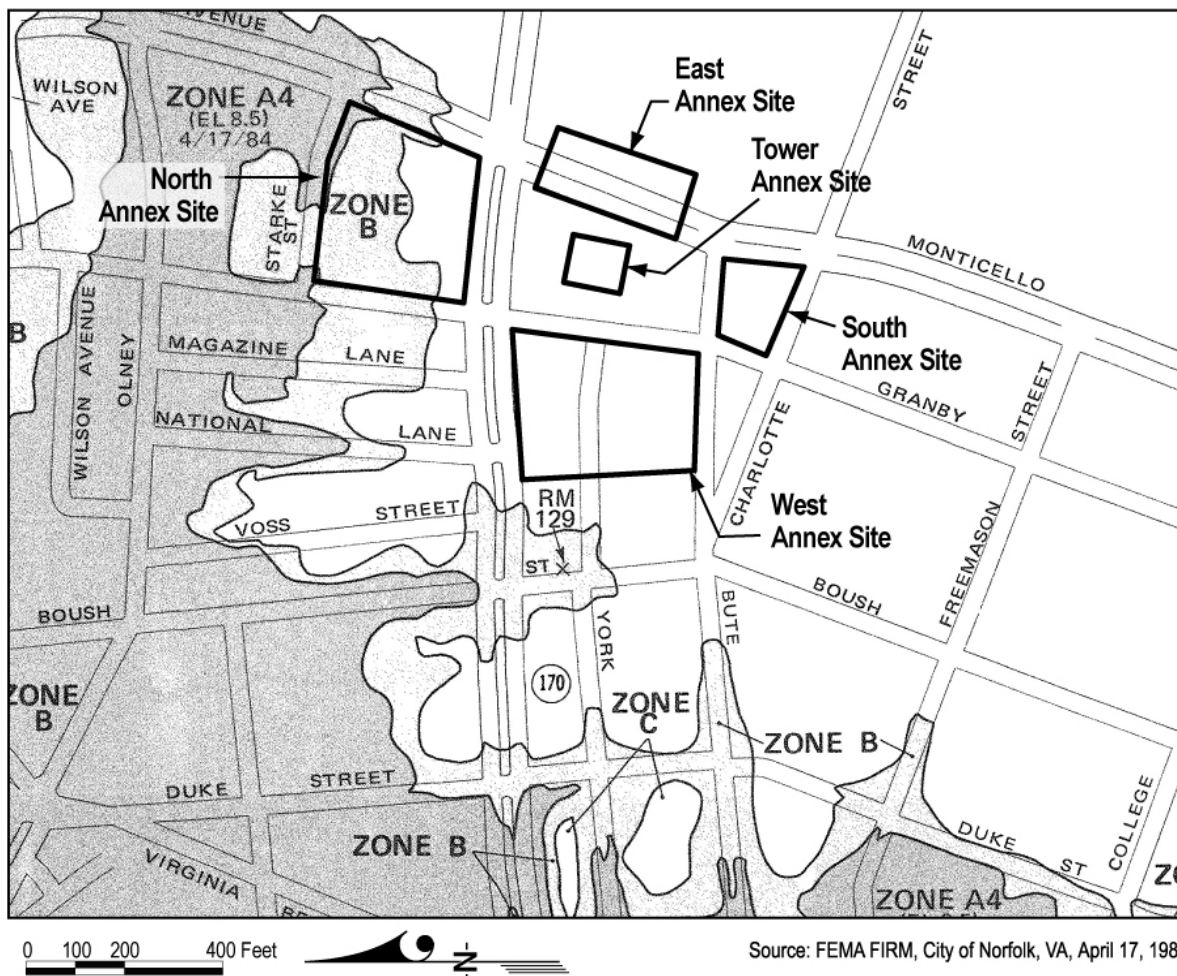
Step 7: Issue findings and a public explanation.

Step 8: Implement the action.

According to the FEMA Flood Insurance Rate Map (FIRM) for the City of Norfolk (Panel Number 5101040017D), approximately 75 percent of the Northern Annex Alternative is located within Flood Zone B.

Zone B refers to areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year floodplain, or an area subject to a 0.2 percent chance of flooding in a given year, that are protected from the 100-year flood by dike, levee, or other water control structure. Zone B also refers to areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; areas subject to 100-year flooding from sources with drainage areas less than 1 square mile.

Zone B on the Northern Annex Alternative refers to areas within the 500-year floodplain, or an area subject to a 0.2 percent chance of flooding in a given year. A small portion of the site is within Zone A4, the 100-year floodplain. Zone A is a Special Flood Hazard Area inundated by the 100-year flood, determined by detailed methods, with base flood elevations shown.



- ZONE A4 Special Flood Hazard Areas subject to a 1-percent-annual-chance of flood (100-year floodplain), determined by detailed methods; base flood elevations shown.
- ZONE B An area subject to a 0.2-percent-annual-chance of flood (500-year floodplain).
- ZONE C Areas of minimal flooding
- EL Base Flood Elevation, referenced to National Geodetic Vertical Datum of 1929 (NGVD 29)

Figure 3-2: FEMA Flood Insurance Rate Map

3.1.6 VEGETATION AND WILDLIFE

Much of the area in and around Norfolk has been previously disturbed by residential, commercial or industrial development, transportation systems and similar activities. As a result, many of the natural plant species and wildlife habitats that were present at the time of the city's original settlement are no longer found or are confined to limited areas.

All five sites are located in downtown Norfolk and are fully developed, with a combination of standing structures and unimproved lots currently under construction. According to the U.S. Department of the Interior, Fish and Wildlife Service, there are no special-status species or habitats located in proximity of any of the alternative sites. In addition, per a January 3, 2006 letter, the Virginia Department of Conservation and Recreation indicated there were no natural heritage resources in close proximity to the any of the sites. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal species, unique or exemplary natural communities, and significant geologic formation.

3.1.7 HAZARDOUS MATERIALS

A screening-level evaluation, comprised of a review of a commercially prepared regulatory agency database and a visual inspection, was undertaken for each site. The evaluation was conducted to determine if any site was listed on, or would be affected by any nearby site listed on, any regulatory agency listing such as the National Priorities List (NPL), the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database or any other similar federal or Virginia listing. The visual inspection, of exterior areas only, sought to identify evidence and/or potential sources of contamination, if any, at each site.

Southern Annex Alternative

A Phase 1 Environmental Site Assessment was performed for this site in December 2005. Land use at the Southern Annex Alternative has historically been a mix of dwellings and commercial businesses. Sanborn Fire Insurance maps indicate the residential dwellings were phased out after the early 1900s and the primary structures on-site became commercial. From the 1920s to the 1960s a gasoline tank was present abutting the Southern Annex Alternative to the south on E. Charlotte Street. Manufacturing activities on-site included a printing facility and peanut roasting facility (1910s to the 1950s).

Historic city photographs, obtained from a public library in Norfolk, Virginia, were also reviewed. The 1914 photograph of the site shows a Studebaker automobile dealership with a sign offering "quality service." This sign is an indication that repair service was performed at the site.

Regulatory database information identified nine federal ASTM listings (Resource Conservation Recovery Act Small Quantity Generators), and 54 state ASTM listings (Leaking Underground Storage Tanks and Underground Storage Tanks-UST), within the standard ASTM search parameters. The site itself is listed as a Leaking Underground Storage Tank site. Remediation activities were performed in 2001 in response to a leak. The UST present on the site has been closed in place in accordance with VDEQ regulations. The LUST listing has since been closed

with no requirement for further action; however, soil and groundwater contamination may remain at the site.

The structure on-site was under renovation during the site investigation. Current building permit procedures generally require asbestos abatement prior to major renovations. Interior demolition appears to have been gutting the building. These activities often remove most, if not all, possible Polychlorinated Biphenyls (PCB)-, asbestos- and lead-containing materials.

Western Annex Alternative

A Phase 1 Environmental Site Assessment was performed for this site in December 2005. Land use at the site has historically been a mix of dwellings and commercial businesses. Commercial operations on-site have included restaurants, auto repair facilities, a vulcanizing facility, a printing shop, a leather company, an oil burner facility, a beverage bottling company, and an electroplating facility. Sanborn map review indicates several gasoline tanks associated with on-site automotive activities were present throughout the years. Previous commercial activities conducted on-site may have impacted the site.

Regulatory database information identified 9 federal ASTM listings (Resource Conservation Recovery Act Small Quantity Generators), and 54 state ASTM listings (Leaking Underground Storage Tanks and Underground Storage Tanks) within the standard ASTM search parameters. None of the listed sites are considered significant to the site due to prior remediation activities, or topographic and physical location (distance from the site).

Structures located on the site prior to the existing conditions include buildings that date back to the late 1800s. It is possible PCB-, asbestos-, and lead-containing materials exist in on-site structures or were buried on-site during prior building demolition activities.

Northern Annex Alternative

A Phase 1 Environmental Site Assessment was performed for this site in December 2005. Sanborn Fire Insurance Maps depict the presence of a large coal yard in the area of the bus station in 1898, which was replaced with residential and commercial buildings by 1910. Early coal yards often sold kerosene, fuel oil, and gasoline. The residential and commercial buildings remain on-site until sometime before 1950, when the majority of them are removed. The 1950 Sanborn map shows a filling station with five gasoline pumps and a bus station at the southern end of the site. The filling station is located under the current bus station, which replaced the old terminal by 1964.

A review of Sanborn Fire Insurance Maps also revealed the presence of an underground tank associated with the Rambler Garage & Supply Company (located in the central-western portion of the site) in 1910. On the 1928 Sanborn map, the northwest corner has been redeveloped as a motorcycle repair shop, a tin shop, and two battery stations. A warehouse situated in the center of the parcel is described as tar & pitch storage. In 1950, the Sanborn map indicates that one of the shops in the northwest corner is home to a "Paints and Oils" store.

A search of environmental regulatory databases identified one Underground Storage Tank (UST) located at 724 Granby Street, which is the address of the old Western Union building. The

database states that the 275-gallon diesel tank is currently in use. No leaks or violations have been reported. No evidence of this UST was observed during the survey. The owner of the building believes that the UST was removed a few years ago, but could provide no further information.

Due to the age of the on-site structures, lead-based paint, asbestos, and PCB-containing materials are likely to be present.

Eastern Annex Alternative

A formal Phase I Environmental Site Assessment has not been completed for this site. Land use at the site has historically been a mix of dwellings and commercial businesses. Sanborn fire insurance maps indicate that the residential dwellings were phased out after the early 1900s and the primary structures on-site became commercial. From the 1920s to the 1960s two filling stations with several gasoline tanks were present abutting the Eastern Annex Alternative to the east. The site has always served as a City street (north-south).

Regulatory database information identified six federal ASTM listings (Resource Conservation Recovery Act Small Quantity Generators). The state ASTM listings identified include: 34 Leaking Tanks (LTANKS); 31 Leaking Underground Storage Tanks (LUST); and 11 Underground Storage Tanks (UST), within the standard ASTM search parameters. One gas manufacturing plant was listed within a 1/4-mile from the site. None of these cases are anticipated to impact the Eastern Annex Alternative.

Tower Annex Alternative

A formal Phase I Environmental Site Assessment has not been completed for this site. The existing courthouse was built in the early 1930's. The central portion of the courthouse has always been vacant and used as a courtyard. No regulatory database information, aerial photograph coverage, or Sanborn map coverage was reviewed specifically relating to the Tower Annex Site. However, based on the site's proximity to the Eastern Annex Site, corresponding database information may be relevant.

Regulatory database information identified six (6) federal ASTM listings (Resource Conservation Recovery Act Small Quantity Generators). The state ASTM listings identified include: thirty-four (34) Leaking Tanks (LTANKS); thirty-one (31) Leaking Underground Storage Tanks (LUST); and eleven (11) Underground Storage Tanks (UST), within the standard ASTM search parameters. One gas manufacturing plant was listed within a 1/4-mile from the site. Again, none of these cases are anticipated to impact the Eastern Annex Site.

Based on anticipated groundwater flow and the topography of the sites, potential contamination at the Western, Southern and Eastern Annex Site is not anticipated to adversely impact the Tower Annex Site.

3.1.8 METEOROLOGICAL CONDITIONS

The climate of Norfolk is characterized by long warm and relatively humid summers and mild, dry winters. The average summer temperature is 77 degrees Fahrenheit (F) and the average daily

maximum temperature is 95 degrees F. In winter, the average temperature is 42 degrees F and the average daily minimum temperature is 33 degrees F. The total annual precipitation is 45 inches of which approximately 56 percent falls from April through September. The remaining 44 percent is more or less evenly distributed throughout the rest of the year. Most precipitation is in the form of afternoon thunderstorms. The average seasonal snowfall is 7.2 inches, mostly falling December through March. The area is affected by storms out of the northeast during fall, winter, and spring.

3.1.9 AIR QUALITY

Definition of Air Pollutants

The EPA defines ambient air in CFR 40, Part 50, as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Amendments (CAAA), the EPA has promulgated ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the EPA has established NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀), ozone (O₃), nitrogen dioxide (NO₂), and lead (Pb). The health and welfare effects of the criteria pollutants are listed in Table 3-1.

There are two types of standards: primary and secondary. Primary standards are designed to protect sensitive segments of the population from adverse health effects, with an adequate margin of safety, that may result from exposure to criteria pollutants. Secondary standards are designed to protect human health and welfare and, therefore, in some cases, are more stringent than the primary standards. Human welfare is considered to include the natural environment (vegetation) and the manmade environment (physical structures). Areas that are below the standards are in “attainment,” while those that equal or exceed the standards are in “non-attainment.”

Under the CAA and the CAAA, state and local air pollution control agencies have the authority to adopt and enforce ambient air quality standards (AAQS) more stringent than the NAAQS. The Commonwealth of Virginia has also adopted ambient air quality standards that specify maximum permissible short-term and long-term consideration of various contaminants. These standards are generally the same as the national standards. National and Virginia standards for air quality are presented in Table 3-2.

Table 3-1: Description of NAAQS Criteria Pollutants

Sulfur dioxide (SO₂): A toxic, colorless gas with a distinctly detectable odor and taste. Oxides of sulfur in the presence of water vapor, such as fog, may result in the formation of sulfuric acid mist. Human exposure to SO₂ can result in irritation to the respiratory system, which can cause both temporary and permanent damage. SO₂ exposure can cause leaf injury to plants and suppress plants growth and yield. SO₂ can also cause corrosive damage to many types of manmade materials.

Particulates (PM₁₀): The PM₁₀ standard refers to inhalable particulate matter, which is defined as particulate matter less than 10 microns (0.01 millimeter) in diameter. The prior standard for Total Suspended Particulates (TSP) referred to airborne particulates less than 100 microns in diameter. Particulates originate from a variety of natural and anthropogenic sources. Some predominant anthropogenic sources of particulates include combustion products (wood, coal and fossil fuel), automotive exhaust (particularly diesels), and windborne dust (fugitive dust) from construction activities, roadways and soil erosion. Human exposure to inhalable particulate matter affects the respiratory system and can increase the risk of cancer and heart attack. Small particulates affect visibility by scattering visible light and when combined with water vapor can create haze and smog.

Carbon Monoxide (CO): A colorless, odorless, tasteless and toxic gas formed through incomplete combustion of crude oil, fuel oil, natural gas, wood waste, gasoline and diesel fuel. Most combustion processes produce at least a small quantity of this gas, while motor vehicles constitute the largest single source. Human exposure to CO can cause serious health effects before exposure is ever detected by the human senses. The most serious health effect of CO results when inhaled CO enters the bloodstream and prevents oxygen from combining with hemoglobin, impeding the distribution of oxygen throughout the bloodstream. This process significantly reduces the ability of people to do manual tasks, such as walking.

Nitrogen Dioxide (NO₂): A reddish-brown gas with a highly detectable odor, which is highly corrosive and a strong oxidizing agent. Nitric oxide (NO) and nitrogen dioxide (NO₂) constitute what are commonly referred to as nitrogen oxides (NO_x). NO_x are formed by all combustion and certain chemical manufacturing operations. During combustion, nitrogen (N) combines with oxygen (O) to form NO. This combines with more oxygen to form NO₂. Under intense sunlight, NO₂ reacts with organic compounds to form photochemical oxidants. Oxidants have a significant effect on atmospheric chemistry and are gaseous air pollutants that are not emitted into the air directly. They are formed through complex chemical reactions which involve a mixture of NO_x and reactive hydrocarbons (HC) in the presence of strong sunlight. Human exposure to NO₂ can cause respiratory inflammation at high concentrations and respiratory irritation at lower concentrations. NO is not usually considered a health hazard. NO_x reduce visibility and contribute to haze. Exposure to NO_x can cause serious damage to plant tissues and deteriorate manmade materials, particularly metals.

Ozone (O₃): An oxidant that is a major component of urban smog. O₃ is a gas that is formed naturally at higher altitudes and protects the earth from harmful ultraviolet rays. At ground level, O₃ is a pollutant created by a combination of HC, NO_x and sunlight, through photochemistry. Ground-level O₃ is odorless and colorless, and is the predominant constituent of photochemical smog. Human exposure to O₃ can cause eye irritation at low concentrations and respiratory irritation and inflammation at higher concentrations. Respiratory effects are most pronounced during strenuous activities. O₃ exposure will deteriorate manmade materials and reduce plants growth and yield.

Lead (Pb): Lead is in the atmosphere in the form of inhalable particulates. The major sources of atmospheric lead are motor vehicles and lead smelting operations. The EPA estimates that ambient concentrations have decreased dramatically in recent years (a drop of 70 percent since 1975) largely due to the decreasing use of leaded gasoline. Health effects from atmospheric lead occur through inhalation and consequent absorption into the bloodstream. Excessive lead accumulation causes lead poisoning with symptoms such as fatigue, cramps, loss of appetite, anemia, kidney disease, mental retardation, blindness and death.

Table 3-2: National and State Ambient Air Quality Standards

Pollutant	National		Virginia
	Primary Standard	Secondary Standard	State Standard
<u>Carbon Monoxide</u>			
1-hour Average	35 ppm	----	35 ppm
8-hour Average	9 ppm	----	9 ppm
<u>Sulfur Dioxide</u>			
Annual Arithmetic Mean	0.03 ppm	----	0.03 ppm
24-hour Average ^a	0.14 ppm	----	0.14 ppm
3-hour Average ^a	----	0.50 ppm	0.50 ppm
<u>Particulate Matter – PM_{2.5}</u>			
Annual Arithmetic Mean	50 µg/m ³	50 µg/m ³	15.0 µg/m ³
24-hour Average ^a	65 µg/m ³	65 µg/m ³	65 µg/m ³
<u>Particulate Matter – PM₁₀</u>			
Annual Arithmetic Mean	50 µg/m ³	50 µg/m ³	50 µg/m ³
24-hour Average ^a	150 µg/m ³	150 µg/m ³	150 µg/m ³
<u>Ozone</u>			
1-hour Average ^b	0.12 ppm	0.12 ppm	0.12 ppm
8-hour Average ^b	0.08 ppm	0.08 ppm	0.08 ppm
<u>Nitrogen Dioxide</u>			
Annual Arithmetic Mean	0.053 ppm	0.053 ppm	0.53 ppm
<u>Lead</u>			
Quarterly Average	1.5 µg/m ³	1.5 µg/m ³	1.5 µg/m ³

Source: U.S. EPA; Commonwealth of Virginia, State Air Pollution Control Board

a Maximum concentration not to be exceeded more than once per year.

b The standard is attained when the expected number of days per calendar year with a maximum hourly average concentration above 0.12 ppm is equal or less than one.

ppm parts per million
µg/m³ micrograms per cubic meter.

Regulatory Responsibilities

Although the EPA has the ultimate responsibility for protecting Ambient Air Quality, each state and local government has the primary responsibility for air pollution prevention and control. The CAA requires that each state submit a State Implementation Plan (SIP), which describes how the state will attain and maintain air quality standards in non-attainment areas. The SIP must be approved by the EPA for each criteria pollutant. The agency responsible for implementing the SIP in Virginia is the Department of Environmental Quality, Office of Air Quality Assessment. In order for projects to comply with the CAA and the CAAA, they must conform with attainment plans documented in the SIP.

Existing Air Quality

At present, the area in which the proposed action is located has been designated in compliance with the National Ambient Air Quality Standards for all pollutants, except the 8-hour standard for ozone. Currently, the 8-hour average standard for ozone puts the City of Norfolk in a marginal non-attainment status for ozone, with a requirement to obtain attainment by 2007.

3.1.10 NOISE

Noise is traditionally defined as any unwanted sound. Magnitudes of sound, whether wanted or unwanted, are usually described by sound, i.e., a dynamic variation in atmospheric pressure. The human auditory system is sensitive to fluctuations in air pressure above and below the barometric static pressure. These fluctuations are defined as sound when the human ear is able to detect pressure changes within the audible frequency range.

Since the range of sound pressure varies greatly, a logarithmic scale is used to related sound pressures to a common reference level and is represented as the decibel (dB). The decibel is the standard unit for sound measurement and represents acoustical energy present in the environment. Humans are capable of hearing only a limited frequency range of sound; generally, humans can hear frequencies ranging from 20 hertz (Hz, cycle per second) to 20,000 Hz; however, they do not hear all frequencies equally well. As a result, a frequency weighting, known as A-weighting, is commonly applied to the sound pressure level, which approximates the frequency response of the human ear by placing most emphasis on the frequency range of 1,000 to 5,000 Hz. Because this A-weighted scale closely describes the response of the human ear to sound, it is most commonly used in noise measurements. Table 3-3 provides examples of common sounds and noise levels expressed on the A-weighted decibel scale.

Table 3-3: Common Sounds Expressed in Decibels

	Decibels (dBa)	Level
Threshold of audibility	0	
Human breathing	5	Faint/Very faint
Rustle of leaves in the wind	10	Faint/Very faint
Average whisper	20	Faint/Very faint
Average residence w/out stereo playing	30	Faint/Very faint
Soft radio music in apartment	40	Faint/Very faint
Average office	50	Moderate
Near freeway auto traffic	60	Moderate
Stenographic room	70	Loud
School cafeteria w/ untreated surfaces	80	Loud
Noisy factory	85	Very loud
Noisy urban street	90	Very loud
Loud auto horn at 10 feet away	100	Very loud
Accelerating motorcycle a few feet away*	110	Deafening
Threshold of feeling: hard rock band	120	Deafening
Threshold of pain	130	Deafening
Near jet engine	140	Deafening

* Fifty feet from motorcycle equals noise at approximately 2,000 feet from a four-engine jet aircraft.

The sound level at a particular instant is not likely to be a good measure of noise levels that vary with time over a wide range, e.g., noise from vehicular movement. To better accommodate and assess the time-varying noise levels typically associated with traffic patterns, a time-averaged, single-number descriptor known as the “Level equivalent” (L_{eq}) is employed. The L_{eq} is expressed in dBA and represents the average energy content of sounds over a specified time

period. It includes both steady background sounds and transient, short-term sounds. It represents the level of steady sound which, when averaged over the sampling period, is equivalent in energy to the time-varying (fluctuating) sound level over the same period of time.

Noise may be more objectionable at certain times. This has led to the development of a measure known as the Day-Night Average Sound Level (L_{dn} or L_{10}). L_{dn} or L_{10} is a 24-hour average sound level that includes a penalty (10 dB) to sound levels during the night (10:00 PM to 7:00 AM). This measurement is often used to determine community noise levels and is endorsed by such agencies as the EPA, the Department of Transportation, the Department of Housing and Urban Development and the Department of Defense.

Two sets of criteria are of interest for the purposes of this environmental assessment:

- **Federal Highway Administration (FHWA) Criteria.** The FHWA has established noise abatement criteria for motor vehicle noise on roadways constructed with federal funds. A noise impact is considered to have occurred if predicted noise levels approach or exceed the standards presented in Table 3-4 or when the predicated traffic noise levels substantially exceed the existing noise levels (usually at least 10 dB above existing levels).
- **Federal Aviation Administration (FAA) Criteria.** The FAA has established noise criteria that pertain to aircraft and airport-associated noise impacts, and has established guidelines for determining noise levels considered acceptable for certain compatible land uses. The guidelines employ the L_{dn} method of measurement and consider all land uses to be compatible with noise levels less than 65 L_{dn} , as indicated in Table 3-5.

Table 3-4: FHWA Noise Standards

Activity Category	L_{eg} (h)	L_{10} (h)	Description of Activity Category
A	57	60	Lands for which serenity and quiet are of extraordinary significance and which serve an important public need, and where preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	70	Picnic areas, recreational parks, playgrounds, active sport areas and parks, residences, motels, hotels, schools, churches, libraries, and hospitals. (Outdoor sound level)
C	72	75	Developed lands, properties or activities not included in Category A or B above. (Outdoor sound level)
D	---	---	Undeveloped lands.
E	52	55	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums. (Indoor sound level)

Existing Noise Levels

All sites are located downtown Norfolk, a relatively noisy urban environment with noise sources primarily associated with vehicular traffic. Observations during field inspections revealed that midday noise levels were relatively low, due primarily to low levels of vehicular traffic near each site.

**Table 3-5: FAA Guidelines on Land Use Compatibility
with Respect to Noise**

Land Use	Yearly Day-Night Average Sound Levels (L ₁₀)					
	Below 65	65-70	70-75	75-80	80-85	Over 85
<i>Residential</i>						
-Residential, other than mobile home parks and transient lodgings	Y	N ²	N ²	N	N	N
-Mobile home parks	Y	N	N	N	N	N
-Transient lodgings	Y	N ²	N ²	N ²	N	N
<i>Public Use</i>						
-Schools, hospitals and nursing homes	Y	25	30	N	N	N
-Churches, auditoriums and concert halls	Y	25	30	N	N	N
-Government services	Y	Y	25	30	N	N
-Transportation	Y	Y	Y ³	Y ⁴	Y ⁵	Y ⁵
-Parking	Y	Y	Y ³	Y ⁴	Y ⁵	N
<i>Commercial Use</i>						
-Offices, business and professional	Y	Y	25	30	N	N
-Wholesale and retail – building materials, hardware and farm equipment	Y	Y	Y ³	Y ⁴	Y ⁵	N
-Retail trade – general	Y	Y	25	30	N	N
-Utilities	Y	Y	Y ³	Y ⁴	Y ⁵	N
-Communication	Y	Y	25	30	N	N
<i>Manufacturing and Production</i>						
-Manufacturing, general	Y	Y	Y ³	Y ³	Y ⁵	N
-Photographic and optical	Y	Y	25	30	N	N
-Agriculture (except livestock) and forestry	Y	Y ⁷	Y ⁸	Y ⁹	Y ⁹	Y ⁹
-Livestock farming and breeding	Y	Y ⁷	Y ⁸	N	N	N
-Mining and fishing, resource production extraction	Y	Y	Y	Y	Y	Y
<i>Recreational</i>						
-Outdoor sports arenas and spectator sports	Y	Y ⁶	Y ⁶	N	N	N
-Outdoor music shells and amphitheatres	Y	N	N	N	N	N
-Nature exhibits and zoos	Y	Y	N	N	N	N
-Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
-Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Y (Yes) Land use and related structures are compatible without restrictions.

N (No) Land use and related structures are not compatible and should be prohibited.

25/30/35 Land use and related structures are generally compatible; measures to achieve noise level reduction (NLR) of 25, 30 or 35 dB must be incorporated into design and construction.

Footnote notations refer to "Notes" below.

Table 3-5 (Continued)
FAA Guidelines on Land Use Compatibility with Respect to Noise¹

Notes

1	The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state or local law. The responsibility for determining the acceptable and permissible land uses remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.
2	Where the community determines that residential uses must be allowed, measures to achieve outdoor-to-indoor noise level reduction (NLR) of at least 25 bD should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide NLR of 20 dB; therefore, the reduction requirement is often stated as 5, 10 or 15 dB over standard construction and normally assumes mechanical ventilations and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.
3	Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
4	Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
5	Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
6	Land use is compatible provided that special sound reinforcement systems are installed.
7	Residential buildings require NLR of 25 dB.
8	Residential buildings require NLR of 30 dB.
9	Residential buildings are not permitted.

Source: Federal Aviation Regulations, "Part 150 – Airport Noise Compatibility Planning," Appendix B.

3.2 SOCIAL ENVIRONMENT

This portion of the EA presents baseline community and regional characteristics of the area potentially affected by the proposed action. It includes an overview of the community's economy, employment patterns, demographic characteristics and physical networks such as the regional transportation system. The proposed action can be expected to impact these conditions during both the construction and operational phases. Existing conditions in the immediate vicinity of the sites are also presented for later discussion of potential noise, air quality, traffic and land use impacts.

3.2.1 DEMOGRAPHICS

Metropolitan Region

According to the U.S. Census, the population of the metropolitan region of Norfolk, Virginia Beach and Newport News in 1990 consisted of 1,430,974 persons (Table 3-6). From 1990-2000, population in the region increased by 8.4 percent (20,377) to a 2000 population of 1,551,351.

With regard to age in 2000, 589,458 residents (37.5 percent) were reported to be less than 24 years of age, 695,774 residents (44.3 percent) were between the ages of 25 and 54 years and 122,706 residents (7.8 percent) were between 55 and 64 years of age (Table 3-7). The remaining 161,603 residents of the region (10.3 percent) were 65 years and older.

City of Norfolk

According to the Bureau of Census, the City of Norfolk's population decreased 10.3 percent between 1990 and 2000. In 1990, the population of Norfolk was 261,250, and by 2000, the population was 234,403 (Table 3-6).

With regard to age in 2000, 99,035 residents (42.2 percent) were estimated to be less than 24 years of age, 95,199 residents (40.6 percent) were estimated to be between the ages of 25 and 54 years and 14,637 residents (6.3 percent) were estimated to be between 55 and 64 years of age (Table 3-7). The remaining 25,532 City residents (10.9 percent) were estimated to be 65 years and older.

Downtown Norfolk

According to the City of Norfolk Planning Department, Downtown Norfolk is generally bound by Addison Street on the north, St. Paul's Boulevard on the east and the Elizabeth River on the west and south. The district had a population of 2,402 in 1990 (Table 3-6). By 2000, the population increased by approximately 19.9 percent to a population of 2,881. With regard to age in 2000, 547 residents (19.0 percent) were estimated to be less than 25 years of age, 1,843 residents (64.0 percent) were estimated to be between the ages of 25 and 54 years and 194 residents (6.7 percent) were estimated to be between 55 and 64 years of age (Table 3-7). The remaining 297 downtown residents (10.3 percent) were estimated to be 65 years of age and older.

Table 3-6: Population Trends 1990-2000

Area	1990	2000	Actual Change 1990-2000	% Change 1990-2000
Metropolitan Region*	1,430,974	1,551,351	120,377	8.4%
City of Norfolk	261,250	234,403	(26,847)	-10.3%
Downtown Norfolk	2,402	2,881	479	19.9%

Source: United States Census Bureau, 2000.

* Geographic area: Norfolk, Virginia Beach and Newport News

Table 3-7: Population By Age Group-2000

AGE	Metro Region		City of Norfolk		Downtown Norfolk	
	Actual Population	% of Total Population	Actual Population	% of Total Population	Actual Population	% of Total Population
Under 5 years	109,223	7.0%	16,546	7.1%	27	1.0%
5 to 24 years	480,235	30.5%	82,489	35.2%	520	18.1%
25 to 34 years	230,379	14.7%	36,620	15.6%	819	28.4%
35 to 44 years	267,230	17.0%	33,569	14.3%	652	22.6%
45 to 54 years	198,165	12.6%	25,010	10.7%	372	12.9%
55 to 64 years	122,706	7.8%	14,637	6.3%	194	6.7%
65 years and over	161,603	10.3%	25,532	10.9%	297	10.3%

Source: United States Census Bureau, 2000.

3.2.2 HOUSING

The Metropolitan Region

According to the 2000 U.S. Census, the housing inventory of the metropolitan region consisted of 608,648 total units (Table 3-8). Of the total, 570,575 (93.8 percent) were occupied and 37,901 (6.2 percent) were vacant. Of the occupied housing units, 358,199 (62.8 percent) were owner-occupied and 212,558 (37.2 percent) were renter-occupied. The average number of persons in an owner-occupied housing unit was 2.7 persons and 2.4 persons in a renter-occupied unit.

City of Norfolk

Norfolk's housing inventory in 2000 consisted of 94,416 total housing units (Table 3-8). Of the total units, 86,210 (91.3 percent) were occupied and 8,206 (8.7 percent) were vacant. Of the occupied units, 39,238 (45.5 percent) were owner-occupied and 46,972 (54.5 percent) were renter-occupied. The average number of persons in an owner-occupied housing unit was 2.5 persons while 2.4 persons per unit was the average number of occupants in a renter-occupied unit.

Table 3-8: Selected Housing Characteristics-2000

Description	Region	City of Norfolk
Housing Units		
Total	608,648	94,416
Owner-Occupied	358,199	39,238
Percent Owner-Occupied	62.8%	41.6%
Renter-Occupied	212,558	46,972
Percent Renter-Occupied	37.2%	49.8%
Vacant	37,891	8,206
Percent Vacant	6.2%	8.7%
Average Number of Persons in Occupied Housing Units		
Owner-Occupied Units	2.7	2.5
Renter-Occupied Units	2.4	2.4

Source: United States Census Bureau, 2000

3.2.3 RELOCATION CONSIDERATIONS

Southern Annex Alternative

The property proposed for the Southern Annex Alternative is currently occupied by a building that was recently renovated with condominiums, The Lofts at 500 Granby, and a restaurant, Baxter's Sports Bar, as well as a civic plaza. The building, formerly known as the Showcase Building, occupies the northwestern half of the site while the plaza is situated on the southeastern half.

Western Annex Alternative

The property proposed for the Western Annex Alternative generally comprises the eastern half of two blocks, adjacent to Granby Street. The site is currently unimproved and ground was recently broken on-site for a proposed 31-story condominium, Granby Tower. There are 302 units proposed for this building.

Northern Annex Alternative

The property proposed for the Northern Annex Alternative is currently occupied by a Greyhound Bus terminal (southern portion of the site), a Sheriff's satellite office (northeast corner of site), a

vacant diner (central-eastern portion of the site), and a former Western Union building (northwest corner of site).

Eastern Annex Alternative

The property proposed for the Eastern Annex Alternative currently serves a six-lane road (north-south) identified as Monticello Avenue. The proposed site also includes the abutting sidewalk easements both east and west of Monticello Avenue. No businesses or residences are located on this property.

Tower Annex Alternative

The property proposed for the Tower Annex Alternative is within the courtyard for the Walter E. Hoffman United State Courthouse. The site would include seven floors above the existing courthouse.

3.2.4 COMMUNITY SERVICES AND FACILITIES

Law Enforcement

The Norfolk Police Department is the principal law enforcement agency in the City. The department employs approximately 699 sworn officers, with headquarters located at 100 Brooke Avenue, approximately 1.5 miles from the proposed sites. The department has mutual aid agreements with surrounding law enforcement agencies, such as police departments in Chesapeake, Virginia Beach, and Old Dominion University, as well as an agreement with the Virginia State Police. All emergency calls are received and processed through a central 911 dispatch system.

Educational Facilities

Public education in Norfolk is provided by the Norfolk Public School System. The school system consists of 34 elementary schools, one school for grades K-8, nine middle schools, and five high schools. Additionally, Norfolk has twelve auxiliary/other schools which include pre-schools and vocational schools. Student enrollment for the 2004-2005 school year was approximately 34,914 and the system employed approximately 3,800 teachers. The average expenditure per pupil was approximately \$8,099 per year. The graduation rate ranges from 64.0 percent to 81.8 percent.

The Norfolk area has a variety of colleges and universities available for advanced degrees and continuing education. The Eastern Virginia Medical School, one of the three medical schools in Virginia, collaborates with over 20 hospitals and clinics in the area. The Norfolk State University, an historically African-American university, has a student enrollment of 7,200 and offers 4 Associate, 32 Bachelors, 19 Masters, and 2 Doctorate degree programs of study. Old Dominion University has a current enrollment of over 18,000 students and offers 67 Bachelors, 65 Masters, and 26 Ph.D. programs. Career and continuing education programs are provided by Tidewater Community College, Johnson & Wales University and Hampton Roads Maritime Academy, all located in Norfolk.

Medical Facilities

There are a wide range of medical facilities in proximity to the project area (see Table 3-9). The closest hospital (including emergency care), DePaul Medical Center, is a 366-bed facility located at 150 Kingsley Lane, approximately one mile from the courthouse area. This hospital has more than two dozen doctors providing a variety of services with the support of nearly 200 nurses.

The closest medical facility, Norfolk Medical Center, is located on 2539 Corpview Avenue, less than one mile away from the proposed sites. The center currently has nine physicians providing cardiovascular, ophthalmology, pediatrics, laboratory services, obstetrics and women's services.

There are two branches of the Sentara Healthcare System in the vicinity, one with medical facilities located less than 1.5 miles from the sites. Sentara Norfolk General Hospital is a 569-bed medical facility that specializes in services such as cardiac, high-risk pregnancy, invitro-fertilization, trauma services, microsurgery and reconstructive surgery. Sentara Leigh Hospital is a 250-bed hospital which features all private rooms and specializes in orthopedic, gynecological, general and urological services. Additional medical facilities located in Norfolk include: Children's Hospital of the King's Daughter's (166 beds), Lake Taylor Hospital (289 beds), and Norfolk Psychiatric Center (77 beds).

Table 3-9: Medical Facilities

Medical Facility	Address	Proximity to Sites	# of Beds
Norfolk Medical Center	2539 Corpview Avenue	< 1 mile	n/a
Children's Hospital of the King's Daughters	601 Children's Lane	1 mile	166
Sentara Norfolk General Hospital	600 Gresham Drive	1.3 miles	569
Hospital for Extended Recovery	600 Gresham Drive	1.3 miles	35
DuPaul Medical Center	150 Kingsley Lane	3 miles	366
Lake Taylor Transitional Care Hospital	1309 Kempsville Road	6 miles	289
Sentara Leigh Hospital	830 Kempsville Road	7 miles	250
Norfolk Psychiatric Center	860 Kempsville Road	8 miles	77

Fire Protection and EMS Services

Fire protection in the city is the responsibility of the Norfolk Fire and Paramedical Services (NFPS). The department responds to fire, emergency medical, heavy rescue, hazardous materials and radiological incidents in the City, as well as natural disasters within a 65 square mile radius. There are currently approximately 500 firefighter/EMTs in the department. All of

the department's personnel have cross-certification as both firefighters and paramedics. The department has 14 fire stations that support 13 engine companies, 7 ladder companies, 10 ambulances and 2 rescue companies, and are divided into three operational battalions. Each engine company is staffed with a Lieutenant, Operator, and Firefighter/Tillerman. Each ladder company is staffed with a Lieutenant, Operator, and two Firefighter/Medics. A typical fire response consists of three engine companies, one ladder company, one squad company, a battalion chief and one ambulance. On average, EMS-related calls have a response time of approximately six minutes or less, while average fire-related calls have a response time of approximately four minutes or less. All calls are dispatched through an enhanced 911 system. The department has mutual aid agreements with all surrounding cities and the naval base.

Due to its proximity to the courthouse, Station 1, located at 450 St. Paul's Boulevard, would be the first to arrive in the event of an emergency. Companies at Station 1 include: Engine 1, Ladder 1, Medic 1, Air Unit 1, Boat 1, and Battalion 1.

3.2.5 LAND USE

All sites are located in downtown Norfolk in an area of the City's earliest major commercial streets (Granby Street).

The City's General Plan, adopted in 1992, sets policy and provides direction for public and private investment in the City for the next 20 years. The Southern, Western, Tower, and Eastern Annex sites are depicted in the Downtown Plan as mixed-use development, with a very small portion of the Eastern Annex site depicted as Educational, Recreational, Cultural, Open Space, and Environmentally Sensitive. The Northern Annex Alternative is depicted as Commercial / Office Use.

Southern Annex Alternative

The property proposed for the Southern Annex Alternative is currently occupied by a building that was recently renovated with condominiums and a restaurant as well as a civic plaza. The building, formerly known as the Showcase Building, occupies the northwestern half of the site while the plaza is situated on the southeastern half.

Western Annex Alternative

The property proposed for the Western Annex Alternative generally comprises the eastern half of two blocks, adjacent to Granby Street. The property is currently unimproved. Construction recently began onsite for the Granby Tower, a luxury condominium that will include 302 units.

Northern Annex Alternative

The property proposed for the Northern Annex Alternative is currently occupied by a Greyhound Bus terminal (southern portion of the site), Sheriff's satellite office (northeast corner of site), a vacant diner (central-eastern portion of the site), and a former Western Union building (northwest corner of site).

Eastern Annex Alternative

The property proposed for the Eastern Annex Alternative currently serves a six-lane road (north-south) identified as Monticello Avenue. The proposed site also includes the abutting sidewalk easements both east and west of Monticello Avenue.

Tower Annex Alternative

The property proposed for the Tower Annex Alternative is the existing site of the Walter E. Hoffman United States Courthouse. The Tower Annex Alternative would be built within the courtyard for the existing Walter E. Hoffman United States Courthouse and would extend seven floors above the existing courthouse. Use of this site for the development of an annex would also include closing of two lanes of Monticello Avenue between Bute Street and Brambleton Avenue and Bute Street between Monticello Avenue and Granby Street.

3.2.6 ZONING

Southern Annex Alternative

The Southern Annex Alternative is located within the City's Freeman/Granby Conservation and Mixed Use District (D-3 zone). Permitted uses in the D-3 zone include government buildings, as well as residences, offices and institutional uses, among others.

Western Annex Alternative

The Southern Annex Alternative is located within the City's Freeman/Granby Conservation and Mixed Use District (D-3 zone). Permitted uses in the D-3 zone include government buildings, as well as residences, offices and institutional uses, among others.

Northern Annex Alternative

The Southern Annex Alternative is located within the City's Downtown Cultural and Convention Center District (D-4 zone). Permitted uses in the D-4 zone include offices (including government buildings), retail and residential development.

Eastern Annex Alternative

The Southern Annex Alternative is located within the City's Freeman/Granby Conservation and Mixed Use District (D-3 zone) and the Downtown Cultural and Convention Center District (D-4 zone). Permitted uses in the D-3 zone include government buildings, as well as residences, offices and institutional uses, among others. Permitted uses in the D-4 zone include offices (including government buildings), retail and residential development. However, the emphasis of public actions in this area will be to promote uses that relate to the arts, visitors and entertainment.

The Tower Annex Alternative is located within the City's Freeman/Granby Conservation and Mixed Use District (D-3 zone). Permitted uses in the D-3 zone include government buildings, as well as residences, offices and institutional uses, among others. This parcel is federally owned property and is not subject to local zoning.



Figure 3-3: Planned Land Use



Figure 3-4: Zoning

3.2.9 ECONOMY AND EMPLOYMENT

The Metropolitan Region

According to the Virginia Employment Commission, in 2000 the metropolitan region's civilian labor force consisted of 710,361 persons (Table 3-9). Between 2000 and 2004, the civilian labor force increased 7.3 percent (56,606 persons) to 766,967.

Between 2000 and 2004, unemployment in the region increased by 1.7 percent, from 2.5 percent to 4.2 percent. In 2004, 31,941 persons were unemployed and in 2000, 17,908 persons were unemployed.

Based on data from the Census and the Bureau of Economic Analysis, in 2000 per capita income in the region was \$26,364 (Table 3-10). In 2004, per capita income had increased by 10.3 percent (\$3,013) to \$29,377.

City of Norfolk

According to the Virginia Employment Commission, Norfolk's civilian labor force consisted of 92,248 persons in 2000 (Table 3-10). The civilian labor force in 2004 consisted of 99,974 persons, an increase of 7.7 percent (7,726 persons) since 2000.

The unemployment rate in Norfolk was 3.3 percent in 2000 (Table 3-9). Between 2000 and 2004, the unemployment rate in the City of Norfolk increased by 2.1 percent. The number of unemployed persons also increased from 3,061 persons in 2000 to 5,431 persons in 2004.

Based on data from the Census and the Bureau of Economic Analysis, per capita income in Norfolk in 2000 was \$23,546 (Table 3-10). By 2000, the per capita income had increased by 9.0 percent to \$25,895.

The Virginia Employment Commission maintains a list of Norfolk's largest private employers (VEC, 2006). In 2005, the list included: Sentara Norfolk General Hospital, Landmark Inc., Old Dominion University, Norfolk Shipbuilding & Drydock, Ford Motor Company Assembly Plant, Landmark Publishing, Norfolk General Hospital, The Virginian-Pilot, Children's Hospital of the King's Daughters, Eastern Virginia Medical School, and Bon Secours DePaul Medical Center.

**Table 3-10: Labor Force, Unemployment Rates,
and Per Capita Income Trends: 2000-2004**

		Labor Force	Unemployment Rate	Per Capita Income
Region±	2000	710,361	2.5%	\$26,364
	2004	766,967	4.2%	*\$29,377
	% Change	7.3%	1.7%	10.3%
City of Norfolk	2000	92,248	3.3%	\$23,546
	2004	99,974	5.4%	*\$25,895
	% Change	7.7%	2.1%	9.0%

± Region: Norfolk, Virginia Beach and Newport News

Sources: Virginia Employment Commission, 2005; U.S. Census, 2000: *Bureau of Economic Analysis (2003 data)

3.2.10 FISCAL CONSIDERATIONS

Fiscal considerations of federal projects are of particular interest to local governments due to the possible loss of local tax revenue. The State of Virginia levies a 6 percent corporate tax on businesses; a 5.75 percent individual income tax on incomes greater than \$17,001 on residents within the state; and a 5.5 percent retail sales tax (on non-food items).

3.2.11 AESTHETICS AND VISUAL RESOURCES

All the sites are located in downtown Norfolk. This area is characterized by modern high-rise office and commercial buildings, as well as eighteenth and nineteenth century office, warehouse and residential structures.

The existing courthouse, constructed between 1932 and 1934 by the federal Works Progress Administration, reflects the Art Deco style of architecture prevalent in the period (Figure 3-5). The four story building is constructed largely of light grey plain and ornamental limestone. The base of the building consists of black granite while facades are embellished with case aluminum spandrels, grilles and trim characteristic of the Art Deco style. The main building entrance steps are of pink granite flanked by black granite plinths upon which rest case aluminum lanterns. Many of the original aluminum windows were replaced during renovations that occurred in 1984. The replacement windows matched the appearance and operation of the original units. Upon its completion in 1934, the courthouse had a tremendous influence on building construction in the area, as an attempt was made to create a unified appearance.



Figure 3-5: Walter E. Hoffman United States Courthouse

Southern Annex Alternative

The Southern Annex Site is comprised of a sports lounge housed in the first floor of the former five-story Showcase Furniture Store that has been renovated for use as condominiums, The Lofts at 500 Granby (Figure 3-6). The former Showcase Furniture store reflects the International style of architecture, with a limestone façade and steel ribbon windows on the upper floors. The ground floor consists of textured concrete block, plate-glass windows with aluminum frames, aluminum door and a sheet-aluminum signboard façade. Behind the building along Monticello Avenue is a parking lot for the condominium residents.



Figure 3-6: Southern Annex Site - The Former Showcase Furniture Store – The Lofts at 500 Granby

Western Annex Alternative

The Western Annex Site is currently unimproved and Granby Tower, a condominium project, is currently being constructed on the former parking areas both north and south of York Street on the Western Annex Alternative (Figure 3-7). Adjacent to the site are five buildings that are contributing resources to the Downtown Norfolk Historic District. Four of these five buildings clearly reflect the influence of the existing courthouse in their design, materials, styling and detailing. The structure located at 109 West York Street is a one-story brick, flat roof building in the Commercial style. The structure located at 111-115 Brambleton Avenue (112 West York Street) is a two-story brick, flat roof building in the Art Moderne style, whose principal façade along West York Street consists of cut limestone with a polished marble base. The structure located at 199 West York Street is also a two-story brick, flat roof building in the Art Moderne style. The main façade of the structure, which is set well back from West York Street, is faced with limestone on the second floor and stucco on the ground floor. The building also has decorative steel window grilles and a second-floor balcony. The structure located at 118-128 West York Street is a two-story brick flat roof building in the Art Deco style, whose principal façade consists of cut limestone with a polished marble base. The massing and main elevation of this structure has remained virtually intact. Finally, the structure located at 118 Bute Street is a one-story brick, flat roof building in the Art Deco style, whose principal façade consists of cut limestone with a polished marble base. The building's main façade, including its aluminum windows and glass-block entrance wall has survived intact.



Figure 3-7: Western Annex Site – Future Granby Tower Condominiums

Northern Annex Alternative

The Northern Annex Site is comprised of a large parking lot, two one-story, block and brick buildings, a brick and frame one-story restaurant, and the Greyhound Bus Terminal (Figure 3-8). The bus terminal is a one-story, cinder-block and steel structure with brick faced walls along Brambleton Avenue from Granby Street to Monticello Avenue. At 723 Monticello Avenue sits a one-story, cross-gabled brick and frame building that is planned as a new restaurant. The building at 724 Granby Street is a one-story block and brick structure with a flat roof. The building has no windows and a single entrance door facing Granby Street. At 731 Monticello Avenue sits a one-story, block and brick structure with flat roof. The facades facing both Monticello Avenue and Starke Street are faced with brick. This building houses the Pretrial Services office of the Norfolk Sheriff's Department. The remaining space within this block consists of parking lots where buildings formerly stood.



Figure 3-8: Northern Annex Site - The Greyhound Bus Station

Eastern Annex Alternative

The Eastern Annex Site consists of Monticello Avenue and its right of way, which is a divided roadway; a portion of the Walter E. Hoffman United States Courthouse lot; and a portion of the Chrysler Hall and Norfolk Scope Arena lot (Figure 3-9). The Chrysler Hall and Norfolk Scope Arena serves as a venue for entertainment and sporting events. The site is bounded on the south by Bute Street, on the north by Brambleton Avenue, and on the east by the present Walter E. Hoffman United States Courthouse; and on the west by the Norfolk Scope Arena.



Figure 3-9: Eastern Annex Site – Monticello Avenue

Tower Annex Alternative

The Tower Annex Site consists of the existing Walter E. Hoffman U.S. Courthouse building. Constructed between 1932 and 1934 by the Federal Works Progress Administration, the building reflects the Art Deco style of architecture. It is a four-story building of light grey plain and ornamental limestone with a base of black granite.

3.3 CULTURAL ENVIRONMENT

Cultural Background

Section 101(b)(4) of the National Environmental Policy Act of 1969 (P.L. 91-190), as amended, requires the Federal government to coordinate and plan its actions to, among other goals, "preserve important historic, cultural and natural aspects of our national heritage..." Council on Environmental Quality (CEQ) requires Federal agencies to include analysis of the potential impacts to historic and cultural resources as part of the NEPA process.

The evaluation of the potential for archaeological resources within each of the proposed alternatives began with background research. The initial literature search consisted of a review of existing surveys and identified historic structures and archaeological sites. This determined the level of previous identification studies and the nature of historic properties in and around each of the proposed alternate locations. This process included a review of the archives, files and maps at the offices of the Virginia Department of Historic Resources (VDHR) in Richmond and the VDHR regional office in Newport News. A review of listings in the National Register of Historic Places (NRHP) for Norfolk was also conducted. Background research entailed discussions with individuals and organizations knowledgeable about local history and resources including the staff of the regional VDHR office in Newport News. County histories and historic maps were also consulted. Historic structure survey and archaeological contract reports documenting the results of previous survey efforts conducted in the vicinity of each of the alternatives were reviewed as part of the background research conducted for this project, as were the state historic structure and archaeological site files. Of importance was an environmental assessment conducted in 2001 for portions of the western and southern alternatives (Berger 2001).

Prehistoric Context

The Coastal Plain of Virginia was occupied for 10,000 years by relatively small populations who lived by hunting and gathering wild resources. Archeologists divide this time span into three general periods: the Paleoindian period, from ca. 10,500 BC to 8,000 BC; the Archaic period, from ca. 8,000 BC to 1,000 BC; and the Woodland period, from ca. 1,000 BC to European contact at approximately 1600 AD. These early populations left numerous relatively small sites in environmentally productive areas.

The human habitation of the region began in the Paleoindian period, around 10,500 BC. In the archaeological record, early Paleoindian sites are usually recognized by the presence of large, fluted, lanceolate shaped projectile points such as Clovis, while later Paleoindian components are represented with projectile point types such as Dalton/Hardaway. Paleoindian hunter-gatherers probably traveled long distances to obtain food and the raw materials for tool production, as has been shown by studies of lithic procurement systems centered on the Thunderbird site in Virginia and other Mid-Atlantic region sites (Gardner 1977; Custer 1984).

The Archaic period is traditionally subdivided into three subperiods; Early, Middle, and Late. In the Mid-Atlantic region, Archaic period sites are much more numerous, are larger, and are richer in artifacts than are the earlier Paleoindian period sites. Archaic period sites represent a series of cultural adaptations that evidence increased sedentism and a focus on large rivers and major

tributaries. Other, often smaller, sites located away from the main streams probably represent seasonal or other specialized activity habitations. Increasing territoriality and regional diversity are reflected in the varieties of artifacts, especially projectile points, associated with the Archaic period. As Archaic peoples became more sedentary, they turned to using local lithic materials such as quartz and quartzite, in contrast to the Early Archaic period when the preferred lithic material was imported, often from great distances.

The introduction of pottery making technology around 1,000 BC marks the beginning of the Woodland period. Innovations in ceramic types have become a significant means for dating deposits within the Woodland period. It was previously thought that the divide between the Archaic and Woodland periods, around 1,000 BC, represented the introduction of horticulture. Although cultivated plants were used by Early Woodland groups in the South and Midwest, there is presently little evidence that cultivated foods played a role in the diet of Early Woodland people in Mid-Atlantic region. Very efficient hunting and gathering systems (Caldwell 1958), including riverine and marine species, may have diminished the need for cultigens. Only after AD 800 to 900, when varieties of tropical cultigens adapted to local conditions arrived in the Mid-Atlantic region, did cultivated foods begin to assume an important role (Smith 1995).

Starting about 2,500 to 1,500 years ago, larger and more sedentary populations occupied the Coastal Plain of Virginia. This late prehistoric time span is divided by archeologists into the Middle Woodland and the Late Woodland subperiods. The more sedentary lifestyle was enabled by intensive use of estuarine resources and, at some point in this time span, the introduction of domesticated plants such as corn, beans, and squash. Most villages were located near a river, with interior areas being utilized for gathering of wild plants and hunting.

Historic Context

Before and during the initial arrival of the English into Virginia, the site of what is now Norfolk was originally the Chesapeake Indian town called Skicoak. Permanent English settlement of the region began in the early seventeenth century with the settlement at Jamestown. By 1634, the population in the vicinity of Norfolk, then part of Elizabeth City Shire, was approximately 5,000. Norfolk, as part of Norfolk Borough, was formed from Norfolk County in 1691. The City of Norfolk was laid out in 1682 and incorporated in 1845. It became an independent city from Norfolk County in 1871. A stable agricultural society, based heavily on tobacco, emerged in Norfolk County during the seventeenth century. The City of Norfolk became a major center for merchants and craftsmen that serviced the surrounding agricultural communities. It also had a major role as a point of shipment for agricultural goods, mainly tobacco.

Norfolk continued to grow during the latter seventeenth and eighteenth centuries, until the period of the American Revolution. During the American Revolution, on New Year's Day 1776, the loyalist governor of Virginia, Lord Dunmore shelled the city destroying 800 buildings. This amounted to almost two-thirds of the city. The colonists later destroyed another 400 buildings as part of a scorched earth policy, nearly destroying the entire city. After seven years the British blockade was ended and the city was rebuilt. Norfolk was the only American city to be completely destroyed during the American Revolution and was subsequently completely rebuilt.

After the American Revolution, a U.S. naval shipyard was established in Norfolk, being constructed in 1801. During the first half of the nineteenth century steam ferries, railroads, and

turnpikes increased Norfolk's connections with the rest of Virginia and other nearby states. As mentioned above, the City of Norfolk was incorporated in 1845 and became an independent city in 1871. Calamity struck Norfolk in 1855, when the city suffered an epidemic of yellow fever, which killed one of every three citizens.

During the Civil War, William Mahone, builder of the Norfolk and Petersburg Railroad in 1858, commanded the city's defenses during the period of Confederate occupation. Norfolk was also the scene of one of the most important naval battles fought during the Civil War. During 1862 the Battle of Hampton Roads was fought off Norfolk. The famous confrontation between the ironclads *Monitor* and *Merrimac* took place during this battle. The Confederate occupation of Norfolk ended in May 1862 with its capture by Union forces. Union troops occupied Norfolk from 1862 to the end of the Reconstruction period in Virginia in 1870.

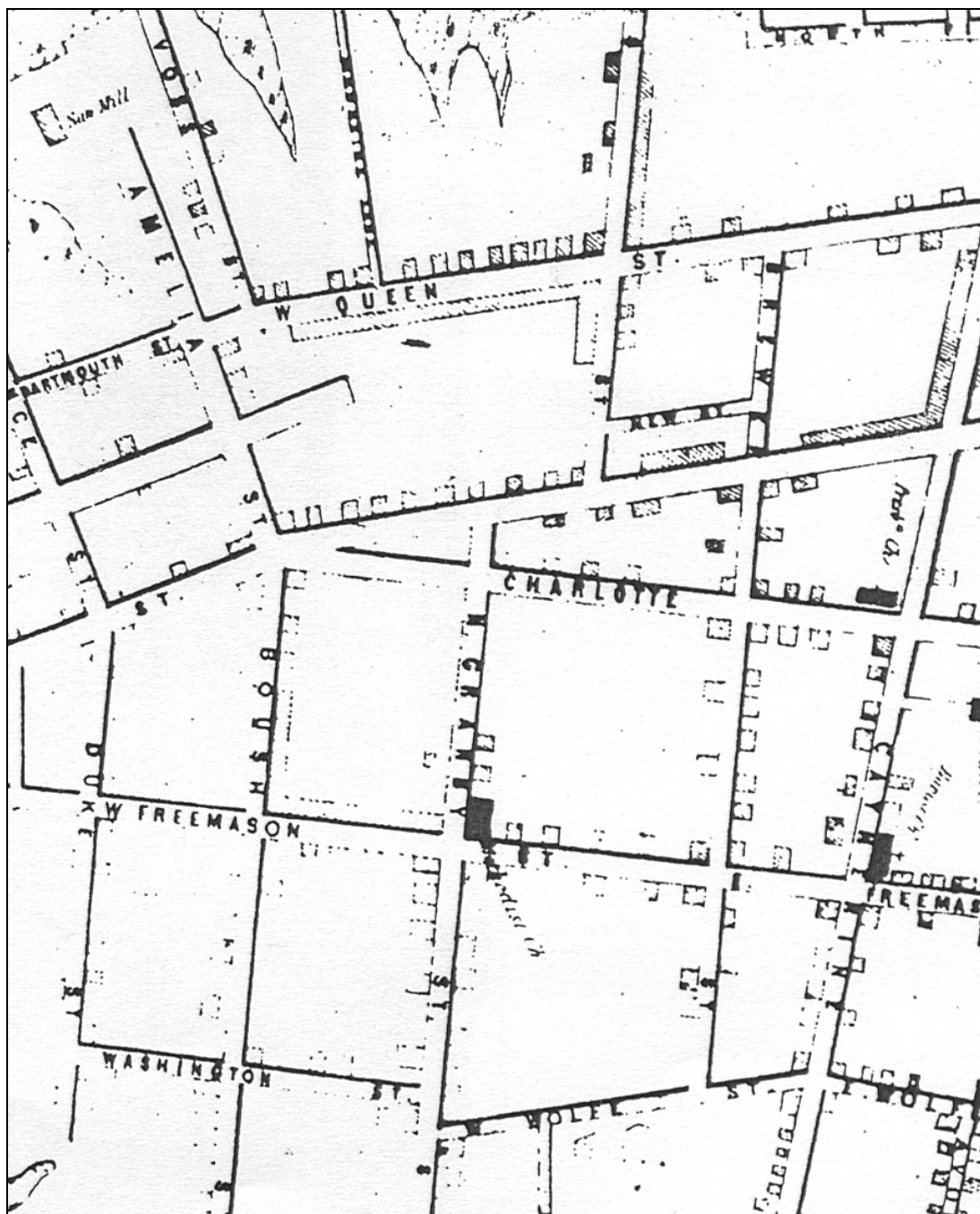
After the Civil War the growth of trade and shipping led to the further development of the port of Norfolk. Farming and shellfish harvesting became major export industries of Norfolk. In the late 19th century, the Norfolk and Western Railway also contributed to the city becoming a major point of shipment.

The favorable location of Norfolk led to its emergence as an important military center during the early twentieth century, with the development of the Norfolk Naval Base. In 1907, the Jamestown Exposition at Sewell's Point included a naval review that demonstrated the area's favorable location, laying the groundwork for the Norfolk Navy Base that was built beginning in 1917. The city limits were expanded in 1923 to include Sewell's Point, Willoughby Spit, and Ocean View, adding the Naval Base and miles of beach property fronting on Hampton Roads and the Chesapeake Bay (http://en.wikipedia.org/wiki/Norfolk,_Virginia).

The Norfolk Naval Base is the largest in the United States and is the headquarters of the Atlantic Fleet and Supreme Allied Command. During World War II, with heightened defense activities and a large population moving into the area to fill military and civilian-military jobs, the population of Norfolk doubled. The nearby Newport News Shipbuilding became Virginia's largest industrial employer. These changes are reflected in the population of Norfolk. At the beginning of the twentieth century, Norfolk was home to 46,000, while in the year 2000, the population had increased to over 234,000.

The project area is generally known as East Freemason. It was part of an original 200-acre grant to Captain Thomas Willoughby in 1636. By 1736, Samuel Boush held title to 98 of the original 200 acres. The Samuel Boush Plan subdivided the land into 160 lots by 1762. The Freemason area got its name from the Masonic Hall that once stood on the site of the Willoughby-Baylor House on Freemason Street. The Masonic Hall was destroyed on January 1, 1776 when Lord Dunmore attacked the city.

Maps from the mid-to-late 1800s show that land use in the East Freemason area remained primarily residential with exceptions being Norfolk Academy and various churches (Figure 3-10). Commercial establishments began to overtake the residential character of the neighborhood by the late-1800s (Figure 3-11). The area began to decline in the late 1950s. During the late-1960s, most of East Freemason and the area to the south was cleared as part of an urban renewal project.



Source: Rolin & Kiely 1851

Figure 3-10: Map of Project Area in 1851



Source: G. M. Hopkins, 1889

Figure 3-11: Map of Project Area in 1889

3.3.1 ARCHAEOLOGICAL RESOURCES

Research conducted at the Virginia Department of Historic Resources (VDHR) indicates that nine archeological sites have been recorded within 1.6 kilometers (1 mile) of the four proposed courthouse annex alternatives (Figure 3-12; Table 3-11). No archeological sites have been recorded within the boundaries of any of the proposed alternatives. With regard to archaeological resources, the physical Area of Potential Effect (APE) for each of the five build alternatives is defined as the area within which ground-disturbance is expected (Figure 3-13).

The previously recorded sites all date to the Historic period, more specifically from the eighteenth century through the twentieth century. Seven of the sites are domestic, one is indeterminate, and one is related to military use. Six of the domestic sites are dwellings that were occupied between the eighteenth and twentieth centuries. Excavations at these sites demonstrate that subsurface deposits and features (trash middens, privies, and wells) have not been impacted by the urban development that has taken place in Norfolk. No prehistoric archeological sites have been recorded near the project area.

Table 3-11: Archaeological sites located within One Mile of the Project Area

Site Number	Site Type	Description	Temporal Affiliation
44NR2	Domestic	Single Dwelling	1750 to 19 th Century
44NR16	Domestic	Single Dwelling, Trash Pit, Well	19 th Century and 20 th Century
44NR18	Military	Other	1775 to 1825
44NR20	Domestic	Trash Scatter	18 th Century
44NR21	Indeterminate	Indeterminate	18 th Century and 19 th Century
44NR23	Domestic	Single Dwelling, Privy, Trash Pit	1775 to 19 th Century and 20 th Century
44NR24	Domestic	Single Dwelling, Privy, Trash Pit	1775 to 19 th Century and 20 th Century
44NR25	Domestic	Single Dwelling, Privy, Trash Pit	1775 to 19 th Century
44NR26	Domestic	Single Dwelling, Privy, Trash Pit	1775 to 19 th Century and 20 th Century

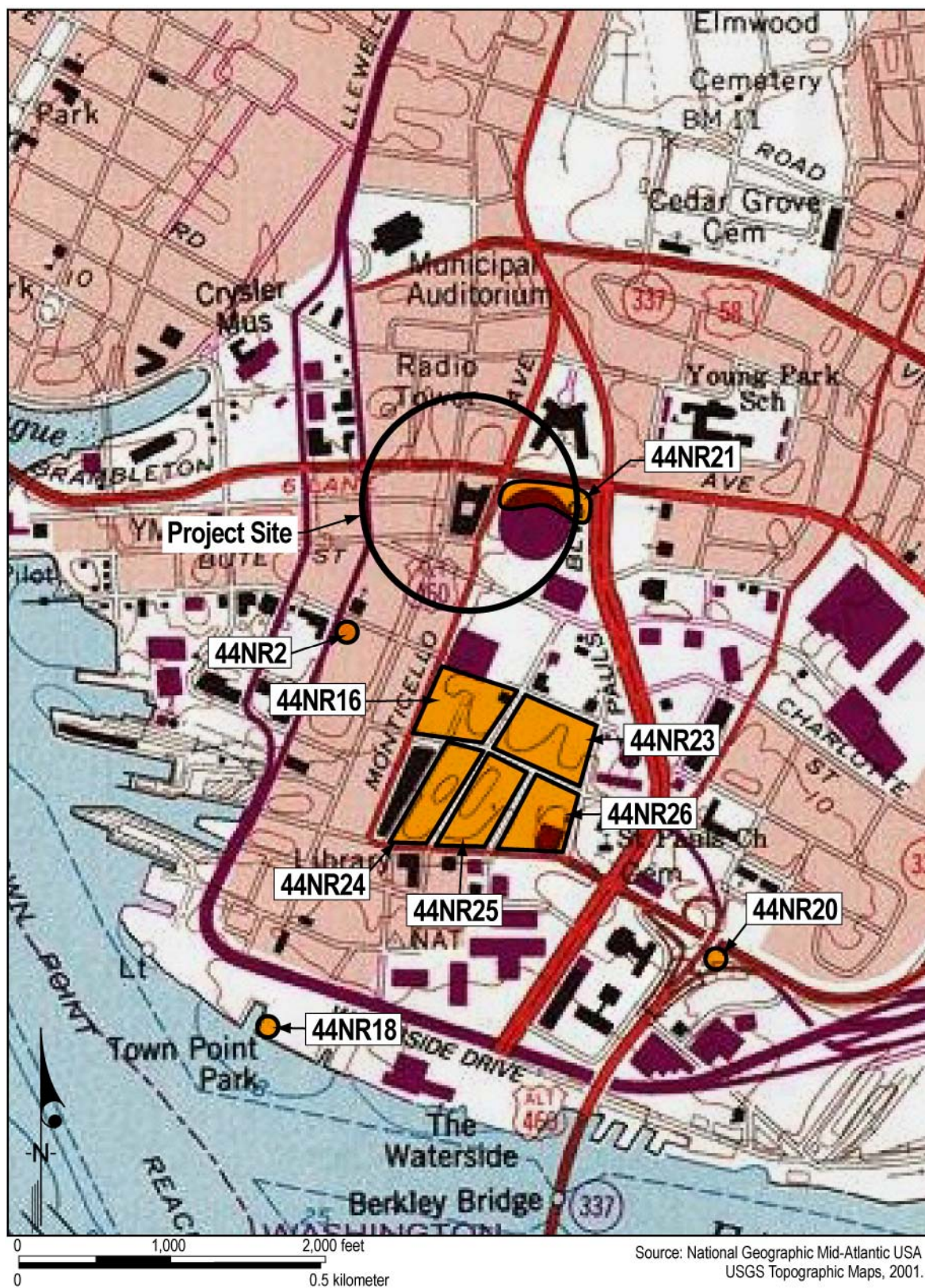


Figure 3-12: Archeological Sites within One Mile of Project Area

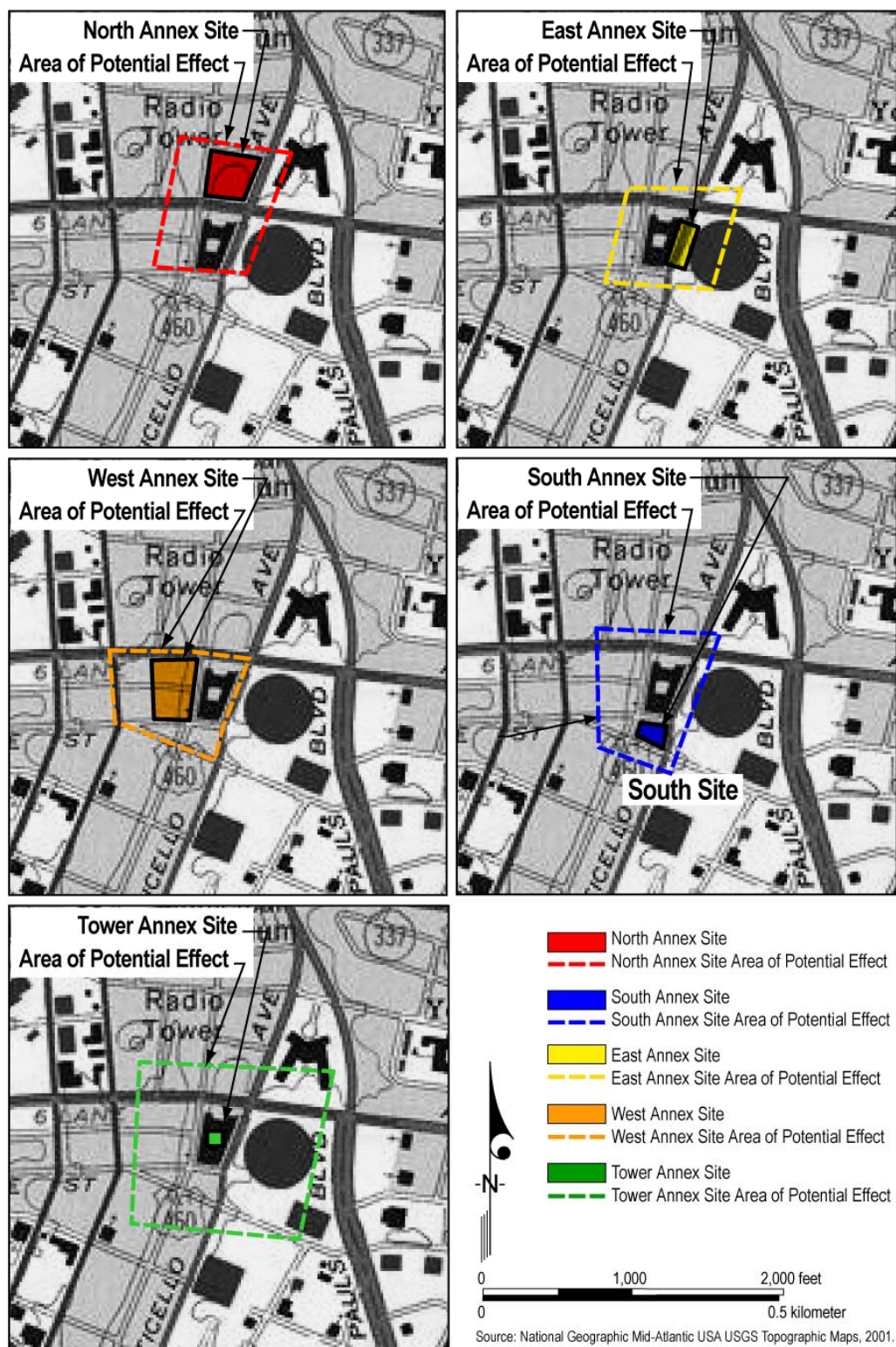


Figure 3-13: Area of Potential Effect

Southern Annex Alternative

No archaeological sites have been identified within the Southern Annex Site physical APE. Based on a review of site files at the VDHR, there are eight archaeological sites to the south, southeast, or southwest of the subject property and one archaeological site to the northeast. These sites are generally located within 0.3 and 0.6 miles of the subject property. However, a review of historic maps of the area indicates that a number of structures were historically present in the physical APE of this alternative (see also Berger 2001).

The earliest map consulted, dating to 1851, indicates that perhaps up to 10 structures were located within this proposed annex site. An 1898 Sanborn map depicts 11 dwellings and a store. By 1910, ten dwellings, four stores, two furnishing stores, and two oyster houses are present within the South Annex Site. A 1928 Sanborn map indicates only two dwellings, four stores, an automobile storage area, and a peanut roasting business as being present within the proposed APE. By 1950, a Sanborn map indicates two dwellings, a furnishing store, two stores, and a hat cleaning store within the Southern Annex Site. The 1970 Sanborn map show a warehouse, a parking lot, and a furnishing store within this alternative.

At the south end of the site, the early twentieth-century construction of the Showcase Furniture building has probably disturbed the greater portion of the lot. The open plaza space to the east of this building may contain intact cultural deposits. In addition, the parking lot at the northern end of the existing Courthouse may also contain buried cultural deposits. Information from background research and from previous archeological investigations in Norfolk and other urban areas suggests that portions of the Southern Annex Site has the potential to contain archeological deposits dating to the nineteenth century. Excavations in nearby areas have also demonstrated that intact deposits, dating to the 1700s, could also be present in this part of Norfolk.

Western Annex Alternative

No archaeological sites have been identified within the Western Annex Site physical APE. Based on a review of site files at the VDHR, there are eight archaeological sites to the south and southeast of the subject property and one archaeological site to the east. These sites are generally located within 0.3 and 0.6 miles of the subject property. However, a review of historic maps of the area indicates that a number of structures were historically present in the physical APE of this alternative (see also Berger 2001).

The earliest map consulted, dating to 1851, indicates that perhaps up to seven structures were located within this proposed annex site. An 1898 Sanborn map depicts approximately 17 dwellings, a store, and a shop within the proposed annex site. Several vacant lots and outbuildings also appear on this map. By 1910, the general configuration is much the same, although the vacant lots have been replaced by additional dwellings. The 1928 Sanborn map indicates that while the north half of the proposed annex site continued to be residential, the south half had been converted into automobile sales, repair, and tire sales facilities, as well as an unidentified store. By 1950, the character of the neighborhood appears to have changed. The north half of the proposed annex site consists of parking areas, restaurants, and stores. It is possible that some of the earlier dwellings were converted to use as stores and restaurants. The south half of the annex site continued to have the same series of commercial buildings as depicted on the 1928 map, although their function appears to have changed. The 1970 Sanborn

map appear to depict the same configuration of structures on both halves as was present on the 1950 map.

It is likely that twentieth-century construction of commercial buildings has disturbed portions of this proposed annex site. In contrast, parking areas may contain intact cultural deposits. Information from background research and from previous archeological investigations in Norfolk and other urban areas suggests that portions of the Western Annex Site have the potential to contain archeological deposits dating to the nineteenth century. Excavations in nearby areas have also demonstrated that intact deposits, dating to the 1700s, could also be present in this part of Norfolk.

Northern Annex Alternative

No archaeological sites have been identified within the Northern Annex Site physical APE. Based on a review of site files at the VDHR, there are nine archaeological sites to the south of the subject property. These sites are generally located within 0.3 and 0.6 miles of the subject property. However, a review of historic maps of the area indicates that a number of structures were historically present in the physical APE of this alternative.

The earliest map consulted, dating to 1851, indicates that perhaps two structures were located within this proposed annex site. An 1898 Sanborn map depicts minimally 20 domestic dwellings, numerous outbuildings, the H.B. Campbell Coal Yard, and at least 1 unnamed store. The 1910 Sanborn map shows essentially the same configuration of dwellings along James and Queen Streets; however, the coal yard is no longer depicted. In addition, dwellings are constructed along Granby Street, along with the Rambler Garage and Supply Company shop and the A.J. Markinson Supply Company shop. By 1920, Starke Street bisects the proposed annex site. Numerous dwellings remain along James (now Monticello) and Queen (now Brambleton) Streets; however, some of the structures appear to be converted to stores. Areas along Granby Street are infilled with additional dwellings and stores or shops, including what appears to be a horse sales and boarding facility. The 1950 Sanborn map illustrates that many of the dwellings had been razed during the last 22 years. Some dwellings had been replaced by a Greyhound Bus terminal, filling stations, and other larger, presumably manufacturing, facilities. Other lots appear to be vacant. By 1970, no domestic structures remain within the proposed annex site. Many of the vacant lots depicted on the 1950 map appear to have been converted to parking areas.

It is likely that twentieth-century construction of manufacturing buildings, gas stations, and the Greyhound Bus terminal has disturbed portions of this proposed annex site. In contrast, parking areas may contain intact cultural deposits. Information from background research and from previous archeological investigations in Norfolk and other urban areas suggests that portions of the Northern Annex Site have the potential to contain archeological deposits dating to the nineteenth century. Excavations in nearby areas have also demonstrated that intact deposits, dating to the 1700s, could also be present in this part of Norfolk.

Eastern Annex Alternative

No archaeological sites have been identified within the Eastern Annex Site physical APE. Based on a review of site files at the VDHR, one archeological site has been identified in the immediate vicinity of the Eastern Annex Site. Site 44NR21, which is located directly to the east of the site (approximately 30 feet) and is identified as an indeterminate historic site that dates to the eighteenth and nineteenth centuries. Eight other archaeological sites are present to the south, within 0.3 and 0.6 miles, of this alternative. In addition, a review of historic maps of the area indicates that a number of structures were historically present in the physical APE of this alternative.

The earliest map consulted, dating to 1851, indicates that at least one structure was present in the APE. By 1898, a Sanborn map depicts 11 dwellings potentially within the East Annex Site. Two stores were also within the site boundaries at this time. The 1910 Sanborn is similar to the 1898 map, although two dwellings appear to have been razed and replaced by a block of four dwellings. By 1928 James Street was renamed Monticello Avenue. While the structures appear similar to those depicted on the 1910 map, the functions of a few appear to have changed from dwellings to stores. In addition, at least two structures in the southeast corner of the project area appear to have been razed. By 1950, all of the structures were razed and most of the area appears to consist of vacant lots. On the 1970 Sanborn map, the City of Norfolk Cultural and Convention Center is the only structure shown in the general area of this annex site.

It is likely that twentieth-century construction of City of Norfolk Cultural and Convention Center has disturbed portions of this proposed annex site. But, according to Kimball David, a local historian and concerned citizen (email dated 11 January 2006), “the city surfaced its roadways in asphalt over earlier cobblestone and other roadways. Monticello Avenue was widened and there may be building foundations under the existing sidewalks and roadway. There is also the possibility of historic trolley tracks. These were not removed and occasionally pop up in street improvements.” This information and information from background research and from previous archeological investigations in Norfolk and other urban areas suggests that portions of the Eastern Annex Site have the potential to contain archeological deposits dating to the nineteenth century. Excavations in nearby areas have also demonstrated that intact deposits, dating to the 1700s, could also be present in this part of Norfolk.

Tower Annex Alternative

No archaeological sites have been identified within the Tower Annex Site physical APE. Based on a review of site files at the VDHR, one archeological site has been identified in the immediate vicinity of the Tower Annex Site. Site 44NR21 is located to the east of the site (approximately 50 feet) and is identified as an indeterminate historic site that dates to the eighteenth and nineteenth centuries. Eight other archaeological sites are present to the south, within 0.3 and 0.6 miles, of this alternative. In addition, a review of historic maps of the area indicates that a number of structures were historically present in the physical APE of this alternative.

The earliest map consulted, dating to 1851, indicates that at least one structure was adjacent to or within the APE. By 1898, a Sanborn map depicts more than 10 dwellings potentially within the Tower Annex Site. These dwellings fronted both Bute Street and what was to become Monticello Avenue. The 1910 Sanborn is similar to the 1898 map. By 1928, many of these

structures appear to have been razed and replaced by commercial shops. On the 1970 Sanborn map, other than the Walter E. Hoffman U.S. Courthouse building, the City of Norfolk Cultural and Convention Center is the only structure shown in the general area of this annex site.

3.3.2 ARCHITECTURAL RESOURCES

A review of previously recorded architectural resources in the SHPO's inventory indicates that all the historic architectural resources in the vicinity of the proposed courthouse annex project have been surveyed. In 1994, the City of Norfolk and VDHR jointly sponsored a survey of most of downtown Norfolk that produced a thematically organized report of the findings. In 1997, using the areas of additional research suggested in the 1994 report as a guideline, the City and VDHR sponsored a continuation of the 1994 survey. This resulted in a second, similarly organized report. Taken together, the two documents provide a comprehensive record of historic structures in downtown Norfolk and document all of the historic architectural resources in the project's APE.

The APE for architectural resources includes the area within which historic properties have the potential to be affected by a proposed undertaking. Effects may be physical, due to alteration or demolition, but may also be audible or visual. Audible or visual effects result when a project has the potential to alter the character of a historic property's setting by introducing either noise or new visual elements that are not in keeping with the historic property's historic setting. Generally, if an area may be easily seen from the site of an undertaking to the point where changes in the feeling or character of the area will be noticeable from the historic property, that area is within the APE. The APE for the proposed action is depicted in Figure 3-14.

The U.S. Post Office and Courthouse, also known as the Walter E. Hoffman U.S. Courthouse, is individually listed in the National Register. In May 2001, the Downtown Norfolk Historic District was expanded to include those buildings south of Brambleton Avenue, west of Monticello Avenue, and east of Boush Street that had been excluded from the original nomination. The nomination form for this expansion, as submitted in 2000, describes all but one of the historic resources located within the APE for each of the four alternatives. This resource, the Virginian-Pilot Building (VDHR No. 122-0849), is located north of the district boundaries and has been individually surveyed and recommended as eligible for the National Register. Three of the alternative sites fall entirely within the boundaries of the historic district and all structures within each of these alternate sites are listed as contributing resources to this district. The district is significant in the areas of government and commerce with a period of significance dating from 1872 to 1949. Structures within this district are comprised of several architectural styles executed in a variety of building materials.

Zoning on the South, West, and East Annex Sites is designated as the Freemason/Granby Conservation and Mixed Use District D-3. This zoning encourages adaptive re-use of existing buildings and the creation of new infill structures that are in scale with the existing development in their immediate area. Development is expected to help create a "village" scale which is conducive to pedestrian circulation and relatively compact developments. In addition to the D-3 zoning, the South, West, and East Annex Sites are all within a special zoning area called an overlay district. This district is known as the Downtown Historic Overlay District (HO-D). The Downtown Historic Overlay District includes the Downtown National Register Historic District

and several structures individually listed on the National Register of Historic Places. Special regulations govern the overlay district. Prior to construction, applicants must obtain a certificate of appropriateness from the design review committee within the planning commission (<http://www.norfolk.gov/>). The north site is in the Downtown Cultural and Convention Center District D-4. This zoning permits offices, retail and residential development. However, the emphasis will be to promote uses that relate to the arts, visitors and entertainment. There are no historic restrictions in the D-4 zoning.

Southern Annex Alternative

The Southern Annex Site is located within the boundaries of the Downtown Norfolk Historic District. The building on the site is a contributing resource to the District. The areas located immediately south and west of the Southern Annex Site are also included in the District boundaries and contain buildings that are contributing resources to the District. There are no historic buildings located on the block east of the Southern Annex Site. The National Register listed Walter E. Hoffman U.S. Courthouse lies directly north of the Southern Annex Site.

Western Annex Alternative

The Western Annex Site is also located within the Downtown Norfolk Historic District. The site incorporates properties on both the north and south sides of York Street between Granby and Boush Streets. There are five buildings directly adjacent to the Western Annex Alternative that are contributing resources to the Downtown Norfolk Historic District: 109 York Street, 111-115 Brambleton Avenue, 119 York Street, 118-128 York Street, and 118 Bute Street. The site itself is open parking. All structures on the blocks to the east and west of the site are listed as contributing elements of the District. On the block to the south, only one building, a one-story, 1907 brick and cinderblock structure, is *not* considered a contributing resource to the District. None of the structures to the north of the Western Annex Site are part of the District, but one, the Virginia-Pilot Building, is recommended as eligible for the National Register.

Northern Annex Alternative

There are no listed or eligible historic buildings or districts located on the Northern Annex Site. The site is largely open parking areas but does include three small late-twentieth century buildings and the Greyhound Bus Terminal building, constructed in the 1960s. There are no National Register listed structures adjacent to this alternative except for the Walter E. Hoffman U.S. Courthouse that lies directly south of the Northern Annex Site.

Eastern Annex Alternative

There are no listed or eligible historic buildings or districts located on the Eastern Annex Site. The site consists of the current right-of-way of Monticello Avenue and small portions of the Walter E. Hoffman U.S. Courthouse property and the Norfolk Scope Arena. The Walter E. Hoffman U.S. Courthouse building is individually listed on the National Register of Historic Places under Criterion C, for its architectural design. There are no other historic structures adjacent to the Eastern Annex Site. A portion of the site is located within the Downtown Historic Overlay District.

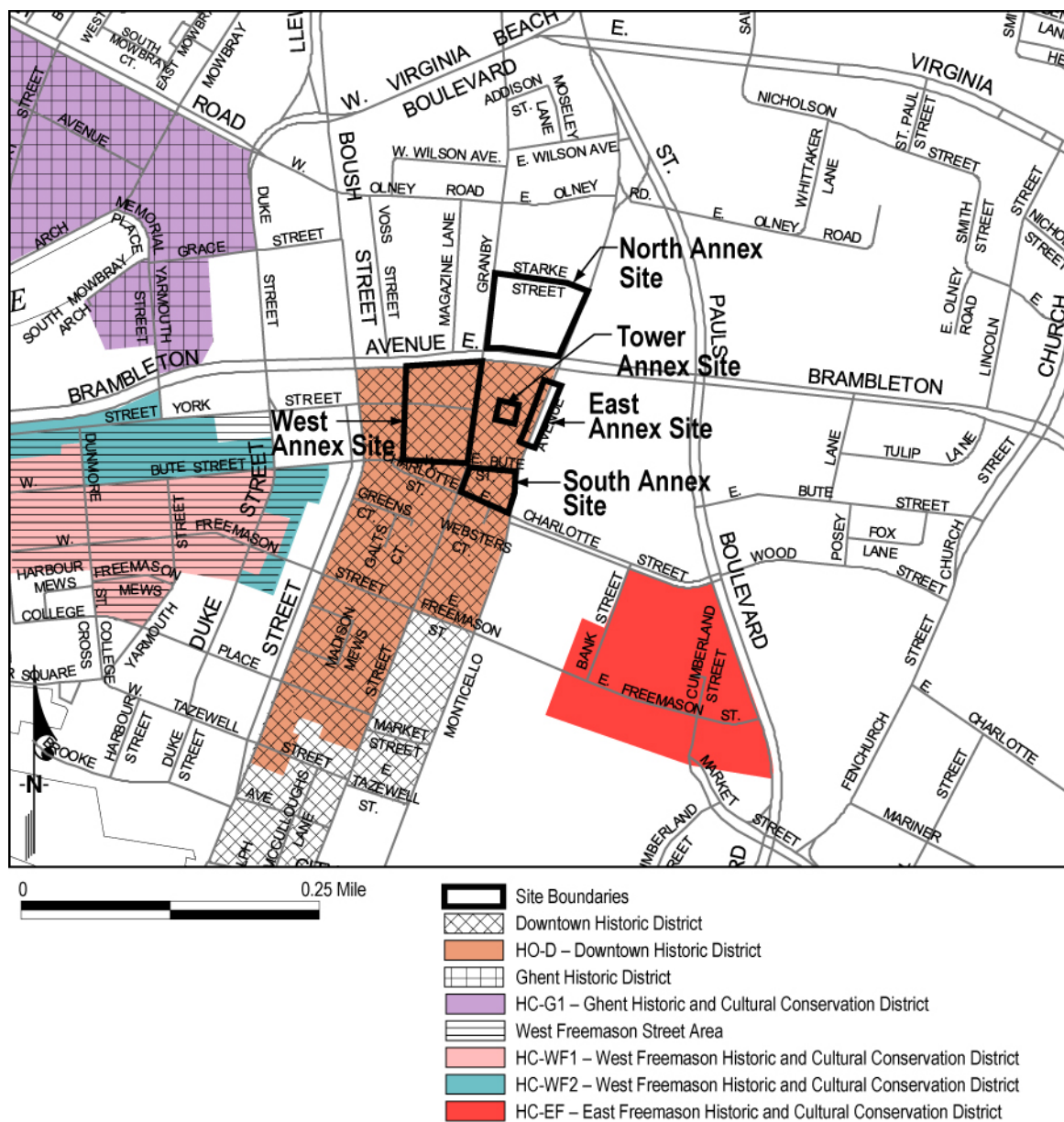


Figure 3-14: Downtown Historic Districts

Tower Annex Alternative

The Tower Annex Site consists of the existing Walter E. Hoffman U.S. Courthouse. As stated above, the courthouse building is individually listed on the National Register of Historic Places under Criterion C, for its architectural design. The Courthouse building is located within the Downtown Historic Overlay District.

The areas located immediately south and west of the site are also included in the Historic District boundaries and contain buildings that are contributing resources to the district. There are no historic buildings located on the block east of the site.

3.4 INFRASTRUCTURE AND WASTE MANAGEMENT

The following sections describe the infrastructure, including utilities, transportation, and waste management, at the site.

3.4.1 UTILITIES

Water Supply and Distribution

The City of Norfolk provides potable water to residents and businesses in Norfolk. The system's primary source is from surface supplies, specifically Western Branch, Lake Prince, and Lake Wright Reservoirs. Water treatment consists of flocculation, sedimentation of flocculated solids and filtration. Chlorine is added as a disinfectant. The City's water system is currently permitted for a maximum flow of 107 million gallons per day (mgd) and current usage averages approximately 60 mgd. Water is delivered to users through underground transmission lines at a pressure of approximately 65 to 70 pounds per square-inch (psi).

An existing 12-inch water line is located within the Granby Street right-of-way, adjacent to the existing courthouse and the proposed Southern, Eastern and Western Annexes. This main is capable of providing flows for the fire, domestic and irrigation demands of the proposed action.

Wastewater Treatment

The City of Norfolk provides wastewater collection and treatment to residents and businesses in Norfolk. Sewer lines are located adjacent to the existing courthouse and a pumping station is located at the corner of Brambleton and Monticello Avenues. Many buildings in the area of the proposed action have been demolished in recent years. According to Department of Utilities officials, this situation has resulted in excess sewer capacity in the area. An existing eight-inch main is located within the Brambleton Avenue right-of-way, adjacent to the existing courthouse.

Sewage generated in the vicinity of the proposed action is treated by the Virginia Initiative Plant, one of nine treatment plants operated by the Hampton Roads Sanitation District. The treatment plant has a permitted capacity of 40 mgd and has an average daily flow of 28.4 mgd.

Electricity

Dominion Virginia Power provides electric power to Norfolk. Service to the existing courthouse is provided by a network of underground transmission lines. Transmission lines exist within the rights-of-way of Granby Street and Charlotte Street. There are no apparent limitations to electric power service in the area of the proposed action.

Natural Gas

Natural gas would be supplied to the proposed facility by Virginia Natural Gas, Inc. Virginia Natural Gas is based in Norfolk and provides natural gas service to over 264,000 residential, commercial and industrial customers in southeastern Virginia. In the vicinity of the proposed action, Virginia Natural Gas has recently upgraded its transmission lines. A two-inch high-pressure (60 psi) line extends along the south side of Brambleton Avenue adjacent to the existing courthouse, and a natural gas main exists within the Granby Street right-of-way.

3.4.2 TRANSPORTATION

This section describes the existing transportation facilities in the vicinity of the Walter E. Hoffman United States Courthouse, including the roadway network, traffic conditions, and the availability of public transportation and parking facilities.

Principal Roadways

The existing courthouse is located in the heart of the Norfolk. It is surrounded by Brambleton Avenue to the north, Bute Street to the south, Granby Street to the west, and Monticello Avenue to the east. Figure 3-15 presents a site location map.

The main roadways in the vicinity of the site are described as follows:

- Brambleton Avenue. This roadway stretches north up to Route 564 and south into North Carolina. Towards the north, it changes names and becomes Hampton Boulevard (Route 58/337) and to the south, it becomes Route 168. In the vicinity of the site this divided roadway runs in an east-west direction with a posted speed limit of 35 miles per hour (mph). All of its main intersections are signalized with auxiliary turn lanes.
- Monticello Avenue. This north-south roadway runs from Church Street to City Hall Avenue. This is a four-lane undivided roadway with a posted speed limit of 25 mph. Its intersections with St. Paul's Boulevard, Brambleton Avenue, and Charlotte Street are signalized with auxiliary turn lanes at all intersections.
- St. Paul's Boulevard. This north-south roadway starts at Monticello Avenue and stretches south to end at Waterside Drive. The posted speed limit along this roadway is 30 mph.
- Boush Street. This north-south roadway stretches between Virginia Beach Boulevard and Waterside Drive. In the vicinity of the site it is a four lane divided roadway from Brambleton Avenue south and a four lane undivided one way roadway to the north of the Brambleton Avenue.

- Granby Street. This two-lane roadway runs north past Virginia Beach Boulevard and tees into Main Street to the south. The posted speed limit along this roadway is 25 mph. Its intersection with Brambleton Avenue is signalized and all other study area intersections along this roadway are stop sign controlled.

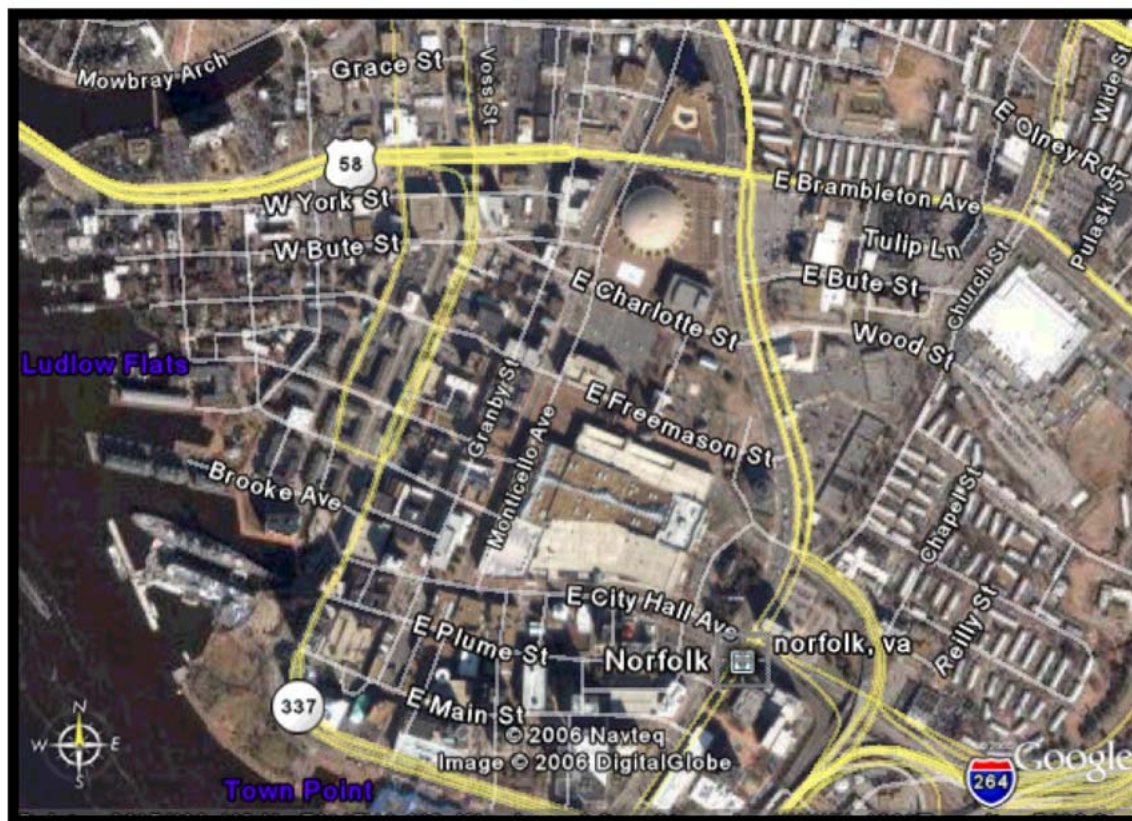


Figure 3-15: Site Location Map

- Starke Street. This east-west roadway stretches between Granby Street and Monticello Avenue. It is a two-lane roadway with parking along both sides and a posted speed limit of 25 mph.
- York Street. This two-lane east-west roadway stretches between Duke Street and Granby Street. This roadway does not intersect Boush Street. Currently its intersection with Granby Street is closed to traffic as there is construction along this roadway.
- Bute Street. This two-lane street stretches between Monticello Avenue and stretches past Duke Street. The section between Granby Street and Boush Street is a one-way westbound section.
- Charlotte Street. This east-west roadway stretches from Bute Street to the west to St. Paul's Boulevard to the east where it changes name and becomes Wood Lane. It is a one-lane one-way eastbound roadway between Bute Street and Monticello Avenue. To the east of Monticello Avenue it widens out to a four-lane roadway.

Traffic Operations Analysis

Peak Hour Turning Movement count data was collected at the following locations from November 2005 to January 2006:

- Brambleton Avenue and Monticello Avenue
- Brambleton Avenue and Granby Street
- Brambleton Avenue and Duke Street
- Brambleton Avenue and St. Paul's Boulevard
- Brambleton Avenue and Boush Street
- Charlotte Street and Monticello Avenue
- Charlotte Street and Granby Street
- Charlotte Street and St. Paul's Boulevard
- Bute Street and Granby Street
- York Street and Granby Street
- Bute Street and Monticello Avenue
- Boush Street and Bute Street
- Granby Street and Strake Street
- Monticello Avenue and Strake Street

Seven-day 24-hour counts were also performed at the following locations:

- Brambleton Avenue between Granby Street and Monticello Avenue
- Monticello Avenue between Charlotte Street and Brambleton Avenue
- Charlotte Street between Granby Street and Monticello Avenue
- Granby Street between Bute Street and York Street

The counts indicate that Monticello Avenue and Granby Street carry approximately 9,100 vehicles per day (VPD) and 7,650 VPD, respectively. Brambleton Avenue carries approximately 38,100 VPD and Charlotte Street, between Granby and Monticello Avenue, carries approximately 1,800 VPD. Traffic volumes at the E. Bute Street/St. Paul's Boulevard intersection are based on traffic volumes obtained from the Norfolk Traffic Engineering Department.

The existing AM and PM peak hour traffic volumes at these intersections are presented in Figure 3-16.

Using these volumes and existing lane geometries, intersection capacity analysis was performed for both the AM and PM peak hours. Analysis was performed using the Highway Capacity Manual methodology and the Synchro software which provides a Level of Service (LOS) output. LOS is described in the Highway Capacity Manual (HCM) as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorist and/or passengers”. The HCM defines six levels of service ranging from A to F, with A presenting the optimal operating conditions with minimal delays and F representing congestion. LOS is measured in seconds of delay per vehicle at an intersection. Most metropolitan areas consider LOS D to be acceptable. It should be noted that although the timings and offsets at the study area intersections were optimized, the phasing was not. The phasing and the minimum timings provided in a Synchro file by the City of Norfolk have been used in all the analyses.

Capacity analysis was carried out for both the AM and PM peak at the study area intersections. These LOSs are presented with the existing traffic volumes on Figure 3-16. Table 3-12 provides the LOS and Delay for each of the intersections.

Table 3-12: Existing Levels of Service

Intersection	AM LOS (Delay - seconds)	PM LOS (Delay - seconds)
Brambleton Ave. and Monticello Ave.	A (9.9)	B (14.6)
Brambleton Ave. and Granby St.	A (7.1)	B (12.2)
Brambleton Ave. and Duke St.	C (22.9)	C (29.2)
Brambleton Ave. and St. Paul’s Blvd.	D (44.1)	D (39.0)
Brambleton Ave. and Boush St.	B (12.8)	B (14.0)
Charlotte St. and Monticello Ave.	B (16.6)	B (13.1)
Charlotte St. and St. Paul’s Blvd.	A (6.8)	A (9.2)
E. Bute St. and St. Paul’s Blvd.	A (4.5)	A (2.6)
Boush St. and Bute St.	B (15.8)	B (10.8)
Charlotte St. and Granby St.	b (11.5)	c (16.0)
Bute St. and Granby St.	b (12.4)	b (13.5)
York St. and Granby St.	a (9.8)	a (10.0)
Bute St. and Monticello Ave.	b (11.6)	b (11.7)

Intersection	AM LOS (Delay - seconds)	PM LOS (Delay - seconds)
Granby St. and Strake St.	b (11.6)	b (10.3)
Monticello Ave. and Strake St.	a (9.2)	b (10.4)

X – signalized intersection LOS; x – unsignalized movement LOS

As can be seen in Table 3-12, all study area intersections are operating at LOS D or better during the AM and PM peak hours. All the movements at the unsignalized intersections are also operating at LOS C or better.

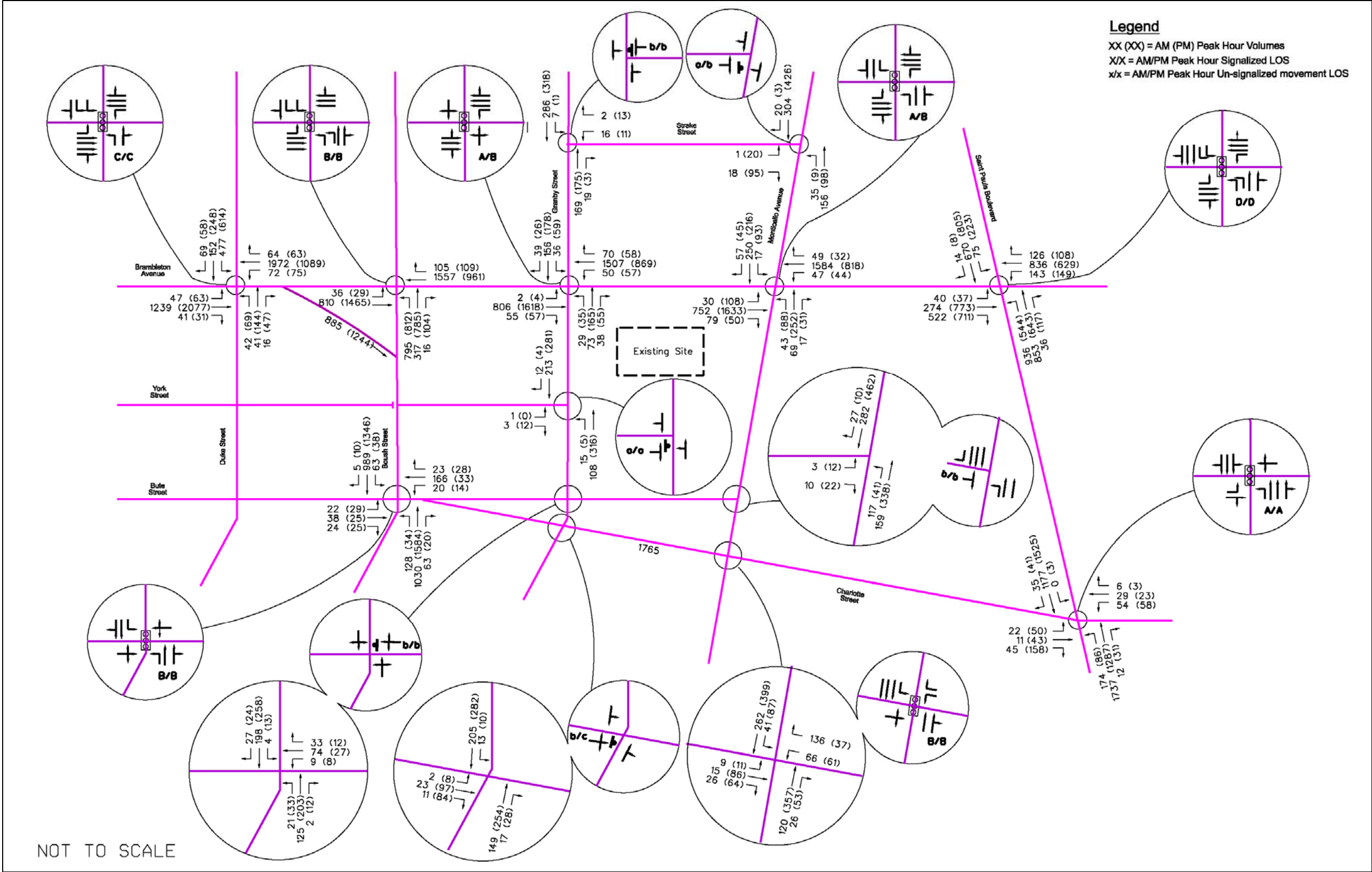


Figure 3-16: Existing Traffic Volumes, Lane Geometries, and LOS Analysis

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Transit Facilities

A number of bus routes along the adjacent roadways serve the Courthouse. These include routes by both the Hampton Roads Transit (HRT) and by the Norfolk Electric Transit (NET). The HRT has many routes near the Courthouse and is easily accessible by the public.

The NET is operated by the HRT and is free of charge for users. It circulates within downtown Norfolk along a 2.2-mile route along many of the main roads including Granby Street and Main Street. The NET runs from 6:30 AM to 11:00 PM during the weekdays. The route names and the frequency are presented in Table 3-13.

Table 3-13: HRT and NET Routes and Frequencies

Route Number	Route Name	Location of Stop	Peak Hour Frequency (approximate)
HRT			
1	Downtown Norfolk/Pembroke East	Monticello Ave/Charlotte St	45 minutes
2	Naval Station Norfolk/Hampton Boulevard	Monticello Ave/Charlotte St	30 minutes
3	Downtown Norfolk/Naval Station	Monticello Ave/Charlotte St	30 minutes
4	Norfolk General Hospital/ODU/Downtown Norfolk	Monticello Ave/Charlotte St	60 minutes
6	Downtown Norfolk/South Norfolk/Robert Hall Boulevard	Monticello Ave/Charlotte St	30 minutes
8	Downtown Norfolk/Little Creek Amphib. Base	Monticello Ave/Charlotte St	30 minutes
9	Downtown Norfolk/Chesterfield	Monticello Ave/Charlotte St	30 minutes
11	Downtown Norfolk/Colonial Place	Monticello Ave/Charlotte St	30 minutes
13	Downtown Norfolk/Robert Hall Boulevard/TCC - Chesapeake	Monticello Ave/Charlotte St	30 minutes
18	Downtown Norfolk/Ballentine Boulevard	Monticello Ave/Charlotte St	60 minutes
20	Downtown Norfolk/Virginia Beach Oceanfront	Monticello Ave/Charlotte St	40 minutes

Route Number	Route Name	Location of Stop	Peak Hour Frequency (approximate)
HRT			
24	Downtown Norfolk/Fort Story	Monticello Ave/Charlotte St	Limited service
45	Downtown Norfolk/Portsmouth	Monticello Ave/Charlotte St	30 minutes
61	Crossroads Route/Peninsula/Southside	Monticello Ave/Charlotte St	Limited Service
NET			
NET	Circular Route - 2.2 mile	Granby Street/Charlotte Street	6-18 minutes

Source: Norfolk Website

Parking Facilities Analysis

A significant amount of public parking exists in the area surrounding the courthouse. A detailed parking study was conducted along the study area streets and the garages in the vicinity of the site. The results determine the availability of parking spaces in these garages and well as the usage during the AM and PM peak hours. The survey was conducted in 20-minute increments from 7 AM to 11 AM and from 2 PM to 5 PM.

Furthermore, an inventory of on-street parking was also conducted to determine the parking restrictions. Metered parking is allowed on many of the side streets; however, most of it is restricted to either 1 or 2 hours. Figure 3-17 presents the on-street parking locations in the vicinity of the study area.

The results of the usage of the parking garages are presented in the Table 3-14 below. The overall results of the on-street parking and the garages/lots are presented in Table 3-15 and 3-16 for the AM and PM peaks, respectively.

The results indicate that there is significant availability of public parking in the area surrounding the courthouse. There are five parking garages within a two block radius of the courthouse. Overall, these 5 garages provide 2,632 parking spaces. In these garages, the average occupancy rate for any one-hour period between 7 AM to 11 AM is 78 percent or less. During the hours of 2 PM and 5 PM, the average occupancy for any one-hour period is 64 percent or less. Thus, overall, there is a significant availability of parking in the garages surrounding the Federal Courthouse.

The on-street parking in the study area is generally 2-hour metered parking. Generally, the availability of the parking fluctuates throughout the day. During the hours of 7 AM to 11 PM, Freemason Street, Bute Street, York Street and Boush Street have 75 percent or higher occupancy. During the hours of 2 PM and 5 PM, a majority of the study streets reach occupancy of 75 percent or higher.

However, generally, significant public parking is available within a 2 to 3 block distance from the Courthouse.

Table 3-14: Parking Survey Results – Garages/Lots

Parking Structure	Number of Parking Spaces	Percent Occupied				
Between 7 AM and 11 AM		7 to 8	8 to 9	9 to 10	10 to 11	Average
York St. Garage	593	20%	42%	53%	66%	53%
Scope Garage	578	6%	17%	19%	25%	18%
Freemason St. Garage	793	25%	52%	72%	78%	62%
Brambleton Lot	341	4%	4%	18%	18%	11%
Lot #26	327	21%	39%	47%	57%	44%
Between 2 PM and 5 PM		2 to 3	3 to 4	4 to 5		Average
York St. Garage	593	64%	54%	37%		56%
Scope Garage	578	18%	16%	12%		16%
Freemason St. Garage	793	50%	47%	44%		48%
Brambleton Lot	341	14%	13%	4%		12%
Lot #26	327	49%	47%	37%		47%

Table 3-15: AM Parking Survey Results

Parking	Number of Parking Spaces	Percent Occupied				
Between 7 AM and 11 AM		7 to 8	8 to 9	9 to 10	10 to 11	Average
On-Street Parking	186	17%	27%	43%	52%	39%
Garage/Lot Parking	2016	13%	31%	41%	47%	36%

Table 3-16: PM Parking Survey Results

Parking	Number of Parking Spaces	Percent Occupied			
		2 to 3	3 to 4	4 to 5	Average
Between 2 PM and 5 PM					
On-Street Parking	186	47	46	40	45
Garage/Lot Parking	2016	36	40	26	38

Pedestrian Facilities Analysis

Sidewalks are present along both sides of all the study area roadways. Crosswalks are also present at all the intersections along Brambleton Avenue, St. Paul's Boulevard, and Monticello Avenue. There is a mid-block crosswalk along Monticello Avenue near the intersection with Bute Street.

Overall, all the major roadways have sidewalks on both sides. The sidewalk along the south side of Brambleton Avenue is very narrow such that only one person can walk along it at a time.

3.4.3 WASTE MANAGEMENT

Solid waste in Norfolk is collected by the Department of Public Works and ultimately transported to the Regional Landfill, located in Suffolk, for disposal. Solid waste is collected and initially transported to the Norfolk Transfer Station at 3136 Woodland Avenue. Waste is then transported to the Suffolk Regional Landfill. The 833-acre site with 151 acres of permitted landfill accepts approximately 2,000 tons of waste daily.

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